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ABSTRACT

The North Carolina Allied Health Articulation Project was launched to develop procedures which would enable an individual to transfer credit from an allied health education program in one setting to some program in higher education. In 1972-73, study committees were appointed to deal with the allied health professions of physical therapy, radiologic technology, medical laboratory technology, and the dental auxiliaries. The following year committees focused on medical record administration, nutrition and dietetics, respiratory therapy, and environmental health technology. The disciplines of this report are restricted to those for which preparation is likely to be acquired in two and four-year institutions of higher education. The three basic patterns leading to professional status which are expected to prevail are: (1) pre-professional curriculum--associate degree (optional), (2) basic professional curriculum--academic certificate or associate degree, and (3) intermediate professional curriculum--academic certificate or associate degree. The third section of the report examines problems related to credit transfer involving criteria for admissions, credit, grades, curriculum, student services, and institutional autonomy, and then recommends appropriate guidelines. More than half of the document consists of an appendix which outlines the status and the recommendations for the transfer of credit of the eight allied health professions studied by this project. (EA)

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ALLIED HEALTH EDUCATION /

TRANSFER OF CREDIT
RECOMMENDATIONS OF THE NORTH CAROLINA ARTICULATION PROJECT

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ALLIED HEALTH EDUCATION /

TRANSFER OF CREDIT RECOMMENDATIONS OF THE NORTH CAROLINA ARTICULATION PROJECT

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SUMMARY

The major goal of the Allied Health Articulation Study was to develop procedures which enable an individual to transfer credit from an allied health education program in one setting to some program in higher education. Prior to this effort, transfer was generally understood to be restricted to the "transfer" programs in two-year institutions—programs leading to an Associate in Arts (AA) Degree or Associate in Science (AS) Degree. But with the work of this project, the concept of transfer has been expanded to include credits from occupational or career programs in two-year institutions—programs leading to the Associate in Applied Science (AAS) Degree.

Although many pathways have envolved which lead to professional status in the allied health professions, they are giving way to established programs in institutions of higher education and three basic patterns which this study suggests are expected to prevail.

1. Pre-Professional Curriculum—Associate Degree (optional).

2. Basic Professional Curriculum—Academic Certificate or Associate Degree.

3. Intermediate Professional Curriculum—Academic Certificate or Associate Degree.

Because each of these curriculum patterns should permit transfer of credit to programs in senior institutions, each may be thought of as a transfer route or model.

Allied health professionals desire transfer credit for career mobility and advanced higher education, according to individual interests and ability, in order to further their education in any of the following areas: advanced professional education; advanced and other professional education (teacher education, administrator education); advanced education in a related science (chemistry, anatomy); or expanded liberal arts education.

The heart of the articulation problem is the transfer of academic credit which may or may not be recognized and accepted by a senior institution. Specific problems are identified in the study which affect transfer of credit and solutions are proposed in the form of guidelines.

Solutions are not suggested for all transfer problems associated with allied health education. However, the study is valuable for these reasons:

1. It is the first systematic effort in the United States on a statewide basis to study transfer problems in allied health education and to expand the concept of transfer to include credits from occupational or career programs in two-year institutions.

2. Problems identified in this study and accompanying recommendations form a basis for further study of transfer problems by educational institutions and professional associations and for development of a statewide plan for allied health education.

3. A large number of institutions in North Carolina, especially technical institutes, are involved for the first time with senior institutions to find solutions to problems of transferring credit earned in a technical or occupational program.

4. This study should serve as a first step to developing a simplified statement concerning transfer of credit for allied health and other technical and vocational programs.

PREFACE

The Project for the Development of Articulation Guidelines for Allied Health Education sponsored by The University of North Carolina and the North Carolina Department of Community Colleges and supported by the National Institutes of Health presents this report in the hope that it will contribute significantly to the solution of a major problem in the delivery of health services.

The purpose of the project is to facilitate upward career mobility in health professions education with particular attention to solving student transfer problems.

Unnecessary barriers often block the way of dedicated young men and women who have chosen a career in the health professions and seek to move from one institution to another in pursuit of that career. Not only do these barriers prevent individual students from developing the fullest measure of their talent and abilities, but they often deprive the state and the nation of valuable health manpower. This project has sought to identify these barriers and to suggest ways of removing them.

The Recommended Guidelines which are presented in this report are the result of many hours of diligent and effective work by representatives of higher education in North Carolina, public and private and at all levels.

Although the Guidelines are yet to be fully implemented and are not binding on any institution, they are a giant step toward improving opportunities for transfer. Already there are indications of strong support from the body which will be most influential in gaining acceptance for the recommendations in the report, the North Carolina Joint Committee on College Transfer Students. Also, the project staff, its committees and study groups, and institutional representatives who have been invited to react to the Recommended Guidelines have done much to produce a climate that will bring success in the remaining work to be done. The completion of the job will require the same atmosphere of cooperation, mutual respect and free communication that has been the hallmark of all of those who have been associated with the project from its beginning. This spirit has been spread too wide and has gone too deep to be easily lost.

ROBERT W. WILLIAMS, *Chairman*
Executive Advisory Committee
North Carolina Articulation Project

1 INTRODUCTION

Mobility has long been a distinguishing feature of American Society. But only in recent years has it become a feature of higher education which has commanded attention and concern. The number of students moving from one institution to another has steadily increased over the past decade. At the same time, requirements for academic credentials have also increased, resulting in demands for further education by those who are already employed but seeking upward career mobility.

These developments have pointed up the problem of transferring credit from one education experience to another. An individual may encounter the problem when he attempts to obtain academic credit for work completed in another institution or even for work completed in another program within the same institution. Or he may encounter the problem when he attempts to obtain academic credit for knowledge and skills acquired outside traditional academic institutions.

Such problems may be more intense in educational curriculums in allied health than in any other field of study. The rapidly evolving nature of the allied health professions, the shift of many training programs from hospital to educational settings, and the pressing need for qualified faculty and supervisors have conspired to make the transfer of credit especially important to allied health curriculums. Because of this condition, the North Carolina Allied Health Articulation Project was launched to identify problems related to the transfer of credit and to recommend solutions to those problems.

SETTING FOR THE PROJECT

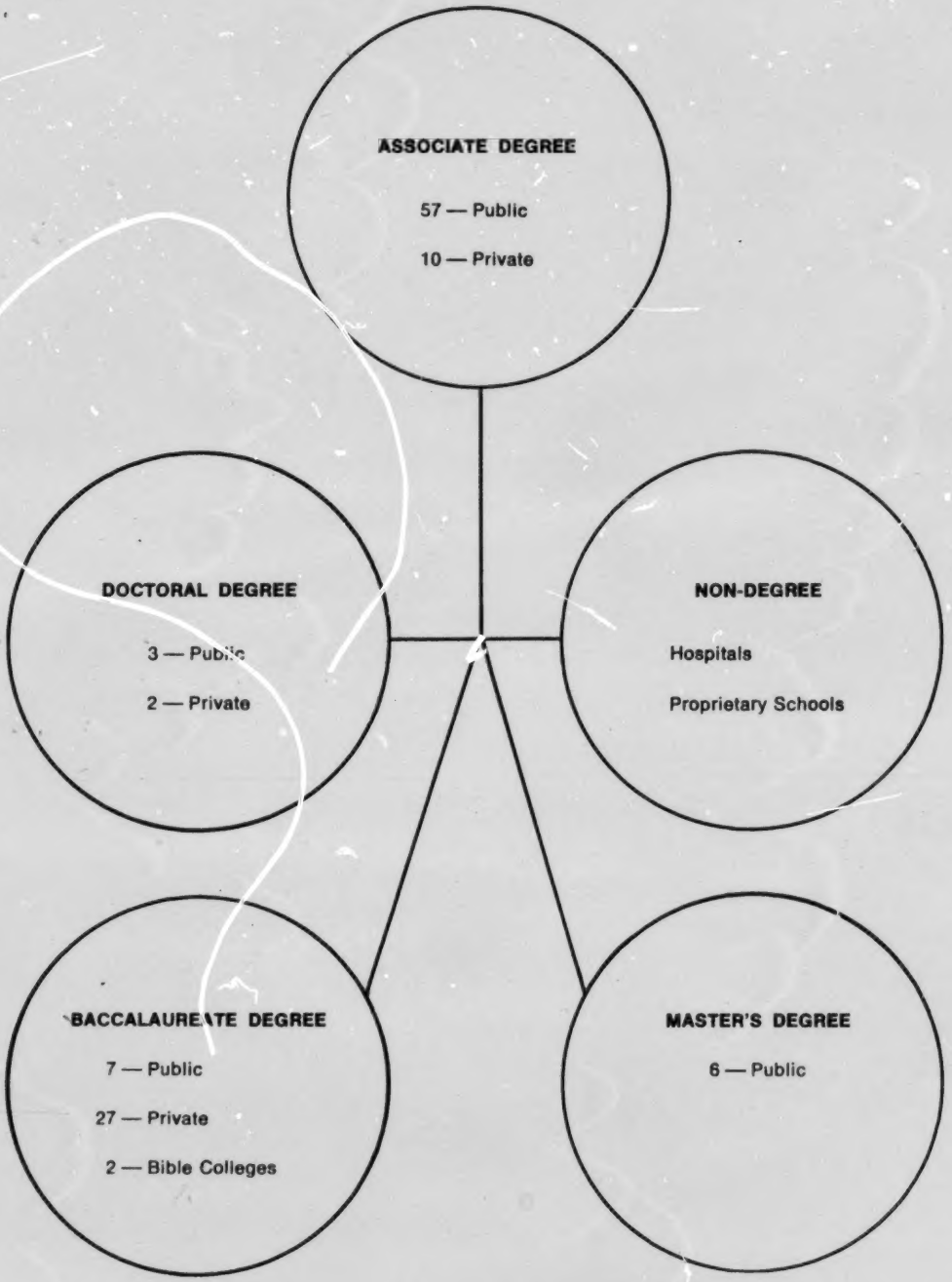
North Carolina is an appropriate setting for such a project. Education beyond high school is offered through a complex variety of institutions. There are *5* institutions which offer the doctorate as the highest degree, *6* which offer the master's degree as the highest degree, *36* which offer the baccalaureate as the highest degree, and *67* which offer the associate degree as the highest degree.

In addition, education beyond high school is offered in *3* military centers, *2* bible colleges, *1* theological seminary, *12* business schools, *6* trade schools, *13* hospital-based nursing programs, and *27* hospital-based allied health programs. (Both the diversity of educational settings and the potential avenues for transfer are illustrated in Figure I.)

The number of people seeking education in the state is substantial. In the fall of 1972, the head-count enrollment in all of these educational settings (excluding extension and adult education) was nearly *200,000*. Enrollment in the public and private degree-granting institutions was *186,556*.[1]

More important, the number of new transfer students enrolled in North Carolina public and private degree-granting institutions has been steadily increasing. About *7,000* were enrolled in the fall of 1968 and by the fall of 1972, enrollment had increased to nearly *10,000*.[2]

FIGURE I. EDUCATIONAL INSTITUTIONS IN NORTH CAROLINA BY HIGHEST DEGREE AWARDED



Efforts to reduce problems related to the transfer of credit date from the early 1960s in North Carolina and are a vital foundation to the work of the Allied Health Articulation Project. Paralleling those efforts and inseparable from them are several organizational developments involving both public senior and public two-year institutions.

Prior to July 1, 1972, the state's *16* public senior institutions were organized in the following fashion. The Board of Higher Education had coordinating responsibilities for the major functions and activities of higher education in the state. Six of the institutions were governed by one Board of Trustees and were designated the Consolidated University of North Carolina. Each of the remaining institutions was governed by its own board of trustees. As of 1972, however, all *16* institutions are governed by one board—the Board of Governers of The University of North Carolina. Work on the problems of the transfer of credit which started under the Board of Higher Education has continued under the newly created Board of Governors of The University of North Carolina.

Public two-year institutions are coordinated by the Department of Community Colleges which is under the Board of Education. Two kinds of institutions are embraced by one comprehensive communiy college system—*17* community colleges and *40* technical institutes. The main difference between the two is the presence or absence of the college parallel curriculum. Community colleges offer freshman and sophomore courses of a college of arts and sciences in addition to technical, vocational, and adult education curriculums. A technical institute, on the other hand, offers only the technical, vocational, and adult education curriculums. Both types of institutions offer allied health curriculums and as a result are equally concerned with problems related to the transfer of credit.

In addition to these statutorily established organizations of higher education, there are two voluntary associations concerned with transfer problems. The North Carolina Association of Colleges and Universities represents public and private senior institutions, public community colleges, and private junior colleges. The North Carolina Association of Junior Colleges represents all public and private two-year institutions.

In the early 1960s, a study of transfer policies in North Carolina institutions revealed serious obstacles to the transfer of credit. As a result of the study, the Joint Committee on College Transfer Students was created in 1965 by the four organizations mentioned above (North Carolina Board of Higher Education, State Board of Education, North Carolina Association of Colleges and Universities, and North Carolina Association of Junior Colleges).

The work of the Joint Committee on College Transfer Students has resulted in two major publications. *Policies of Senior Colleges and Universities Concerning Transfer Students from Two-Year Colleges in North Carolina* shows the transfer policies of each institution.[3] *Guidelines for Transfer* consists of the recommendations of the Joint Committee on a variety of specific problems and for a number of specific academic disciplines.[4]

The special significance of the Joint Committee on College Transfer Students is that it has provided a vehicle for communication among all institutions in North Carolina. Its work does not constitute a state plan, a formal agreement among institutions, or a mandate for institutions. Rather, through open communication it provides guidelines which are recommended to institutions for acceptance on a voluntary basis. Its work is notable for its demonstration of cooperation without coercion. As a result of its work, the Allied Health Articulation Project was started in a climate highly conducive to the specialized concerns of allied health curriculums.

PURPOSE OF THE PROJECT

The major goal of the Allied Health Articulation Project was to develop procedures which will enable an individual to transfer credit from an allied health education program in one setting to some program in higher education. Generally such a transfer of credit is attempted between a two-year institution and a senior institution. But transfer of credit may also be attempted between two programs in one institution, or between institutions offering the same level of degrees, or between a program in a non-degree-granting institution and a degree-granting institution.

Specific objectives for the project were identified in the contract with the National Institutes of Health as follows:

1. Assemble available materials on current requirements for admission to and course content of selected allied health educational programs within the state.

2. Review such materials for possible integration and coordination, and for transfer of credit from one level of educational program to another within the same institution and from one institution to another within the state.

3. For the articulation guidelines develop policies, procedures, and recommendations related to general education requirements, technical/professional educational requirements, and practicum requirements, as well as recognition of knowledge and skills gained through other formal and non-formal experiences (e.g., challenge examinations, equivalency examinations and proficiency examinations).

In a recent study articulation was defined as "the method or process of joining together."[5] In the case of this project, articulation was understood to be the process of joining together education programs in allied health, the process of identifying similarities and differences among courses which make up such programs, and the process of identifying gaps or overlaps between any two such programs. It is a process in which communication among those interested in allied health education is as important as the product of their deliberations.

Allied health education programs which were to be studied under the terms of the NIH contract were as follows: physical therapy, dental auxiliaries, radiologic technology, medical laboratory, medical record administration, nutrition and dietetics, respiratory therapy, and environmental health technology.

ORGANIZATION FOR THE PROJECT

Figure II depicts the functional organization for the Articulation Project. The project was jointly sponsored by the Department of Community Colleges and The University of North Carolina General Administration. Only the latter, however, was designated as the contractor for the project.

Ultimately the articulation guidelines formulated through the project will be recommended to the co-sponsors for acceptance and approval. Prior to such a step, however, the articulation guidelines will be forwarded to the Joint Committee on College Transfer Students for review and approval. As the standing committee on transfer problems in the state, the committee is expected to provide a perspective which will easily integrate the recommendations of the project with earlier work on transfer.

The work of the project was guided and approved by an Executive Advisory Committee consisting of 12 members plus the Project Director and Associate Director. Members of the committee were selected to represent two-year and senior institutions, public and private institutions, as well as such areas as admissions, general education, professional education and practicum experience.

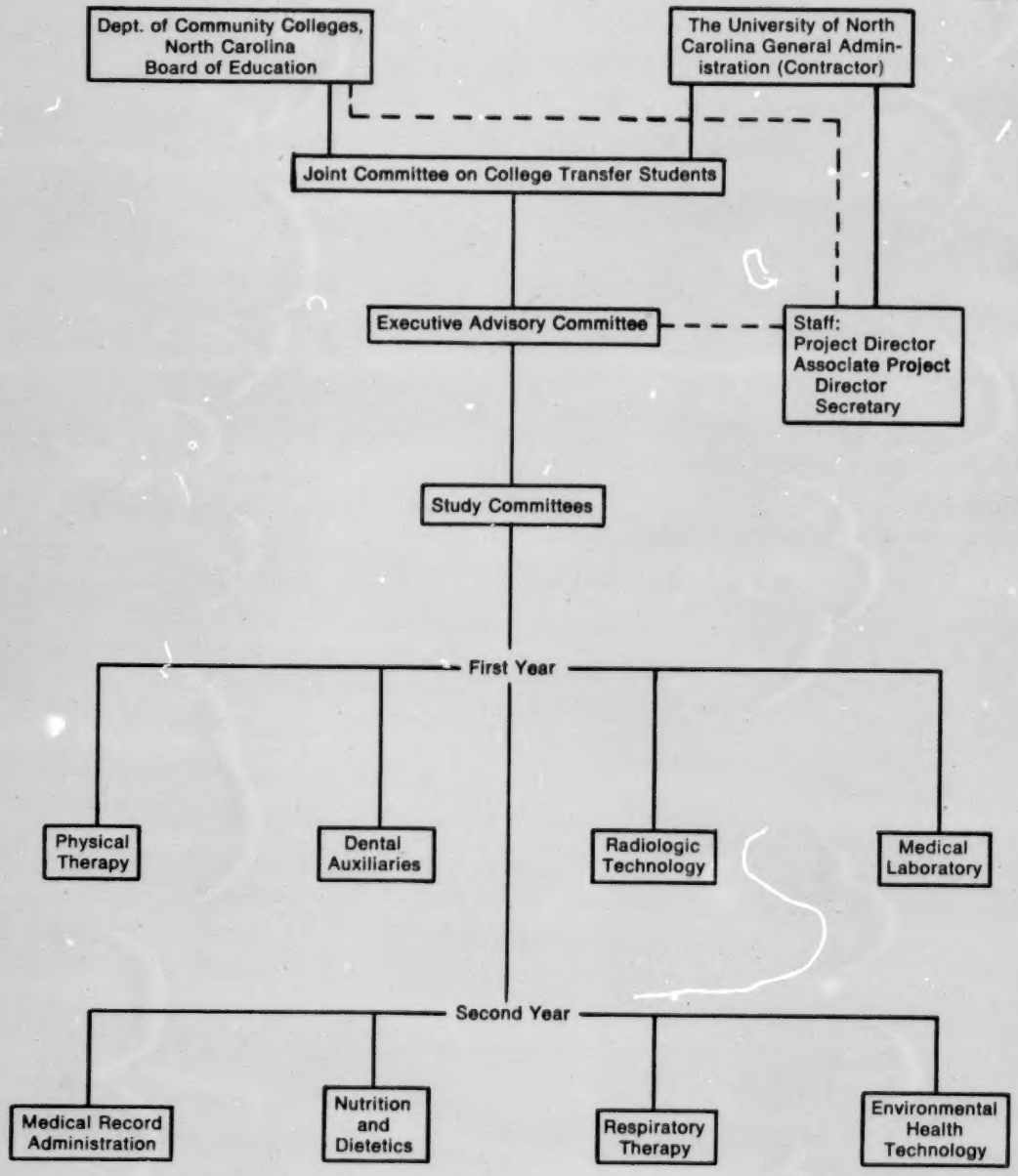
For the first year of the project (1972-73), four study committees of about eight persons were appointed to deal with the following allied health professions: physical therapy, radiologic technology, medical laboratory technology, and the dental auxiliaries. For the second year (1973-74), four committees were appointed to deal with medical record administration, nutrition and dietetics, respiratory therapy, and environmental health technology. Members of each committee were chosen to be representative of the same range of interests as those on the Executive Advisory Committee.

METHODOLOGY

Following a planning meeting of the Executive Advisory Committee in December, 1972, an orientation meeting was conducted for the first-year study committees in January, 1973. The orientation meeting acquainted the committee members with the background of articulation in the state and introduced them to the problems and questions to be considered in developing articulation guidelines. Most of the questions were based upon the issues identified by the national Joint Committee on Junior and Senior Colleges in 1966[6] and the ten transfer problems identified by Willingham in 1972.[7]

The chief link among the four committees which worked separately was provided by the Project Director and Associate Director. One and usually both attended all meetings of the committees and in the process kept each group informed of the work of the other committees. In addition, the Associate Director served as the secretary for each study committee and provided summaries of all of the study committee meetings. These summaries were distributed to members of the Executive Advisory Committee and the chairmen of the other study committees.

FIGURE II. FUNCTIONAL ORGANIZATIONAL CHART NORTH CAROLINA ALLIED HEALTH EDUCTION ARTICULATION PROJECT



This process of communication encouraged the four committees to maintain a common schedule and goal of producing transfer guidelines by May, 1973.

In may, the Executive Advisory Committee was confronted with each committee's response to a variety of questions about the transfer of credit from allied health programs. At a meeting of the Advisory Committee and the chairmen of the study committees, the varying answers to each question were discussed and one was chosen as the response to be included in the transfer guidelines. The process then was one of extensive discussion of the issue prior to determination of the exact wording of the guidelines.

After the guidelines were approved by the Executive Advisory Committee, they were presented to a statewide meeting of approximately 90 persons in order to obtain further reactions and discussion. Participants in this meeting were chosen to represent as many two-year and senior institutions as possible, to represent the public and private sectors, to represent a variety of academic programs and administrative viewpoints, and to represent clinical as well as academic settings.

In advance of the meeting, participants were divided into five groups which were designed to be as heterogeneous as possible in order to obtain a broad range of criticism. The groups were charged with identifying and listing as many objections as possible to each guideline. At the end of the day, objections were compiled and then returned to the groups the next day. The task for the second day was to overcome the objections.

Overall, the guidelines were the product of consensus by the study committees and the Advisory Committee, followed by extensive critical examination, followed by modification at the statewide meeting. The modified version was again submitted for approval by the Advisory Committee.

During the second year of the project, four additional study committees met to consider programs in medical records administration, nutrition and dietetics, respiratory therapy, and environmental health technology. These committees were charged with the responsibility of reacting to the guidelines for their respective allied health disciplines. In April, 1974, these committees were brought together to evaluate this publication.

In keeping with the pattern of developing transfer guidelines in North Carolina, the allied health guidelines will be submitted to the Joint Committee on College Transfer Students for endorsement and the Department of Community Colleges and The University of North Carolina General Administration for final approval.

SIGNIFICANCE OF THE REPORT

Providing for the transfer of credit from education programs in allied health is a pioneering effort in North Carolina and the nation. Prior to the effort, transfer was generally understood to be restricted to the "transfer" programs in two-year institutions—programs leading to an Associate in Arts (AA) Degree or Associate in Sciences (AS) Degree. But with the work of this project, the concept of transfer has been expanded to include credits from occupational or career programs in two-year institutions—programs leading to the Associate in Applied Science (AAS) Degree.

FOOTNOTES

[1]The University of North Carolina, "Education Beyond the High School," *Higher Education in North Carolina*, Vol. 1, No. 4 (February 23, 1973).

[2]The University of North Carolina, *Statistical Abstract of Higher Education in North Carolina*, 1972-73 (Chapel Hill: The University of North Carolina, 1973) p. 57.

[3](Raleigh: North Carolina Board of Higher Education, 1972).

[4](Chapel Hill: The University of North Carolina, 1973).

[5]Frederick C. Kintzer, *Middleman in Higher Education* (San Francisco: Jossey-Bass, 1973) p. 1.

[6]Joint Committee on Junior and Senior Colleges of the Association of American Colleges, American Association of Junior Colleges, American Association of Collegiate Registrars and Admission Officers, *Guidelines for Improving Articulation Between Junior and Senior Colleges* (Washingon: American Council on Education, 1966).

[7]Warren W. Willingham, *The No. 2 Access Problem: Transfer to the Upper Division* (Washington: American Association for Higher Education, 1972).

2 ALLIED HEALTH EDUCATION

Expansion of allied health education in the past two decades has been phenomenal and is attributed to demands for more health services and to new technology in the health sciences. These two factors have resulted in roles which can be assumed by health professionals other than physicians, dentists, nurses, pharmacists, and other traditional health specialists. Such roles have focused attention on education of allied health personnel.

Since World War II there has been rapid growth in allied health education programs throughout higher education. New types of health manpower have evolved and established disciplines, such as physical therapy, medical record administration, occupational therapy, medical laboratory, dietetics, and environmental health, to name a few. In some cases, subspecialties have emerged within a discipline. The major trends then have been an increase in the number of educational programs for each allied health discipline and an increase in the programs preparing new types of health professionals.

DEFINITION OF ALLIED HEALTH

Allied health is not easily defined. The scope of this field if defined broadly would include all professional, technical, and supportive workers in patient care, public health, health research, and environmental health programs. Also, education for allied health personnel if broadly interpreted would range from a few weeks of education, primarily as on-the-job training for orderlies and aides, to advanced graduate education leading to the doctoral degree.

The Allied Health Articulation Project and this report are restricted to selected allied health disciplines.[1] All of the selected disciplines are ones for which preparation is likely to be acquired in two- and four-year institutions of higher education. Graduate allied health education is beyond the purview of this report. However, the conclusions and recommendations of this report should have application to allied health education as it is more broadly defined.

DEVELOPMENT OF ALLIED HEALTH

Many allied health disciplines began initially as on-the-job training programs in health care facilities, and professional status was obtained outside formal educational programs in institutions of higher education.

Individuals trained in this fashion joined together and formed professional associations which in turn created the standards for admission to membership in the associations. Eventually, new professional associations together with the American Medical Association established standards for accrediting the pro-

grams of study which were often located in a clinical facility. Even today, accreditation of some allied health programs is limited to only that portion of the curriculum offered in a clinical facility even though the basic didactic education and degree may be offered in an institution of higher education.

Many allied health education programs are still found in educationally isolated hospitals and laboratory settings that have extremely small enrollments and faculties, little academic structure and minimal program review procedures. They also lack long term continuity, stability, and direction for the educational program which is characteristic of established institutions of higher education.

Greater demands for health manpower, limitations of clinical based programs, and increasing concern with cost of these programs have led to a realization that this is not the most suitable setting for these programs. It is now generally agreed that basic professional education for the vast majority of allied health technicians and technologists which America's health care systems require now and in the decades ahead should occur in established institutions of higher education.

It was logical, therefore, for newly developing two-year educational institutions of higher education to accept responsibility from hospitals and clinics for many of these programs and to join in the task of preparing health manpower with four-year colleges and universities, which were also expanding their roles rapidly in this field.

Allied health education is in a transitional state: it is an expanding professional field; institutions of higher education and health service facilities are assuming new roles in allied health education; and professional associations are reexamining professional curricula, standards for accreditation, licensure and certification, and mobility within and between professions in an effort to cast allied health education into molds which will best serve the decades ahead. Career mobility within this field and the attendant problem of transfer of credit within and between educational institutions are affected by the shifting sands of this profession.

MOBILITY AND ARTICULATION

Expansion of allied health programs in higher education has created many new roles for allied health professionals. Today there are opportunities for career mobility in higher education as well as in health care delivery.

Education beyond the basic level of education or training is essential to those professionals who must assume leadership roles as faculty, administrators, and researchers. For some allied health personnel, this advanced level of education means work in graduate programs. For others, however, advanced education means transferring from a two-year institutional, professional allied health program of study or in some instances from a certificate program housed in a non-academic clinical facility to an upper divisional program in a four-year institution of higher education. The step upward from programs in two-year institutions has been difficult because these programs have been considered terminal and not transferable to a senior college or university. Often the student transferring to a senior institution has been given no recognition for a program completed in the two-year institution and has been required to apply for admission as a freshman.

Education beyond the basic level of education or training is also essential to those professionals who wish to assume new responsibilities in the delivery of health care. Because the primary objective of their basic level of education was to prepare them for specific tasks in health care, they encounter the same problems in securing advanced education as those seeking career mobility in higher education.

In both cases, the lack of time in the basic level programs does not permit the inclusion of the general education widely regarded as a foundation to upper division work in a senior institution. Additional general education courses are required by the transfer institutions in order for the student to qualify for the baccalaureate degree. These additional courses mean additional time and hence frustration for the mobility-minded allied health professional.

Allied health professionals seeking advanced education also learn that many courses offered in two-year institutions are not acceptable for transfer because the receiving institution has no "parallel" courses. Even if there are parallel areas of study in both two-year and four-year institutions, as in physical therapy, medical laboratory sciences, dietetics, and environmental health, credit may not be transferred because the professions have given little attention to the relationship between professional courses of study and the practicum offered at each level. The position is often taken by the senior institution that there are no

comparable and/or acceptable courses in the lower division curriculum which would transfer as equivalent to a specific course in the baccalaureate curriculum. To overcome this difficulty, interested faculties are experimenting with designing professional curricula at both academic levels into modular units and comparing modules for transfer purposes as a substitute for full courses of study. Credit by examination to allow credit where course areas may not be clearly identified for equivalency credit is also encouraged.

Studies of the transfer of credit between two- and four-year institutions up to the present time have been directed primarily to the college parallel curriculum. Little or no attention has been given to transfer of credits earned in a technical professional allied health education program. The college parallel curriculum, which may also be a pre-professional health education program of study, usually transfers with little or no loss of credit. The technical program of study in a two-year institution usually leads to an Associate in Applied Science degree and much less transferable credit.

Patterns of education at senior institutions often fail to accommodate the unique problems which confront the transfer student whose initial introduction to higher education is in special and technical allied health education during the first two years of post-high school study. If graduates of these programs are to have opportunities to move upward through the system of higher education, as recommended in Carnegie Commission studies of higher education, traditional patterns of education must be altered and allow mobility without imposing undue loss of time and expense upon the student and without compromising standards of the receiving institution.

Principles concerning academic degrees suggested in the Carnegie Commission sponsored report, *Academic Degree Structures,*[3] may help resolve problems if accepted by institutions of higher education:

A. Each degree should mark a successful completion of one stage of academic degree progress without implication or prejudgment as to the student's capacity to embark on following stages (i.e., the student who completes technical education in a two-year institution and wishes to reenter the mainstream of higher education in pursuit of an advanced degree).

B. Degree structures should be so interrelated that the maximum opportunity exists for redirection as the student's motivation, interest, and intellectual achievements permit.

C. Various components of educational experiences may be arranged in a variety of sequences. (To be specific, it is not desirable to always confine general liberal arts education to the first two years and specialized subject matter to the last two years of undergraduate study. In many instances it is better to allow the student who is preoccupied with a given line of study to follow this line vigorously in his first exposure to post-secondary education as long as his program will be balanced out before he finishes.)

ACCREDITATION AND REGULATORY PRACTICES

Accreditation standards and regulations governing admission to practice a health profession were established to protect the student, public, and profession. Until 1949 any professional organization or special interest group was relatively free to institute a program of accreditation if it wished. Each group was autonomous, free to establish its own standards of training, recruitment, and performance and generally free of any control.

Using medicine as the prototype many new allied health occupations seeking a privileged professional status modeled their aspirations after medicine. Thus, today among the health professions, "the majority sponsor both accreditation and certification programs as two closely related aspects of one standard-setting process."[3]

While the purpose of these standards has been directed to quality education and performance, they have also tended to seal professional groups off from critical inquiry. It is believed that undue restrictions have been placed upon the professions which in turn limit their effectiveness in the late 20th century.

> Initiated by different groups, at different points in time, in response to diverse social and economic conditions, the processes of accreditation, certification, and licensure were orginally conceived as independent procedures geared to separate, distinct roles and objectives. Today, in the hands of a wide variety of health professions, accreditation, certification, and licensure are bound together by a complex array of interlocking relationships, which through time have forged all three processes into one comprehensive health manpower credentialing system.
>
> Accompanying this structural evolution was revolution in expectations. Once conceived with limited and somewhat prosaic objectives in mind, the companion process of accreditation, certification, and licensure are now collectively called upon by society to assume the weighted responsibility of identifying competent personnel to staff its health care systems. In the course of this metamorphosis, the pattern of critical procedures and mechanics of accreditation, certification, and licensure have changed little since their inception in the 19th and early 20th centuries. However, the social milieu in which they must operate, the purposes they are called upon to serve, and the issues they are expected to address have undergone dramatic transformation.[4]

Some of the constraints imposed upon professional education by accreditation and regulatory health agencies also influence transfer of credit within and between allied health disciplines.

Some have suggested that rigid control of the health professions by health professionals has created conflict of interest situations. Professional associations are aware of these concerns and are addressing themselves to these problems. Some of the troublesome situations encountered in this study of credit transfer are expected to become academic in the years ahead. At the present time, however, there are problems which are directly related to the failures of the professional associations, as well as of educational institutions, to recognize that education and regulation of health professionals must be identified with the social milieu in which they must operate if these institutions are to survive.

PATHWAYS TO PROFESSIONAL STATUS

The scope of the allied health field, the range of education for members of the profession, the evolution and location of professional education for individual disciplines, and the expansion and proliferation of new types and levels of allied health personnel have created many career entry points to the allied health professions. Achievement of upper level professional status in some disciplines has often routed the individual through several levels of performance consisting of a combination of semi-formal, on-the-job learning experiences and examinations conducted by the professional association. These basic pathways through clinical facilities often led to a professional certificate and skirted institutions of higher education. Others were directed into programs of professional education in institutions of higher education which offered academic certificates for less than two years of work, and associate, baccalaureate, and graduate degrees.

Most professions are now shifting the primary base of professional education programs from clinical facilities to two-year institutions of higher education and to an associate degree which is becoming the minimal education standard for professional recognition by the associations. This transition should help stabilize the preparation routes and entry points to careers in allied health. This development should also identify common academic subjects for allied health disciplines and allow more flexibility in transferring credit when students wish to change a career direction or to move upward to a higher level of professional competency and to a baccalaureate degree.

The location of professional allied health programs formerly found in clinical institutions in two-year colleges and the acceptance by senior institutions of objectives for advanced education and career mobility for graduates of these programs will help in the future to resolve the problems noted here which interfere with transfer of credit.

CLASSIFICATION OF EDUCATION PROGRAMS

Allied health education programs may be classified in a variety of ways for purposes of examining issues related to credit transfer. One option is to list programs according to the level of manpower produced:

assistant, technician, and technologist. Another is to group programs by type of manpower: medical, dental, community, administrative, and so on. Still another option is to group programs according to the type of curriculum and academic degree or certificate awarded: non-academic curriculum and professional certificate awarded; pre-professional curriculum and associate degree awarded (optional); basic professional curriculum and academic certificate or associate degreee awarded; intermediate professional curriculum and academic certificate or associate degree awarded; and professional curriculum and baccalaureate degree awarded. Although many pathways have evolved which lead to professional status, they are giving way to established programs in institutions of higher education and three basic patterns which are expected to prevail.

A. Pre-Professional Curriculum—associate degree (optional).
B. Basic Professional Curriculum—academic certificate or associate degree.
C. Intermediate Professional Curriculum—academic certificate or associate degree.

Each of these curriculum patterns should link with an upper division program leading to a baccalaureate degree which in turn should articulate with graduate education. Because each curriculum pattern should permit transfer of credit to programs in senior institutions, each may be thought of as a transfer route or model (see Figures III, IV, and V).

1. Pre-Professional Curriculum: Transfer Model A

This curriculum provides for completion of general education requirements and prerequisites of the professional education curriculum which is offered as an upper divisional program of study leading to a baccalaureate degree. This is the usual route of entry to such professions as physical therapy, medical technology, and occupational therapy which are usually offered as baccalaureate degree programs. Full credit is usually granted by the senior institution for general education and prerequisite courses completed in this pre-professional curriculum. The curriculum may culminate in the award of an associate degree or with two full years of academic credit depending upon individual circumstances. This curriculum pattern is illustrated in Figure III.

FIGURE III. PRE-PROFESSIONAL CURRICULUM: TRANSFER MODEL A

ACADEMIC YEARS	ACADEMIC EMPHASES	ACADEMIC AWARDS
1-2	*Pre-Professional Curriculum* General Education Courses Professional Curriculum Prerequisites	Associate Degree or Equivalent of First 2 Years of College
3-4	*Professional Curriculum** Professional Courses Practicum General Education Courses Required for This Degree	Baccalaureate Degree

*Curriculum examples:
A) Physical Therapy
B) Medical Record Administration
C) Medical Technology
D) Environmental Health
E) Dietetics

2. Basic Professional Curriculum: Transfer Model B

Many allied health professional curriculums are offered by two-year post-secondary institutions of higher education which grant an associate degree. Upon completion of an appropriate basic allied health curriculum, the student is qualified for admission to a licensure, certification, or a registry examination leading to full professional status in the discipline. Disciplines involved in this curriculum include dental hygiene, radiologic technology, and respiratory therapy. These programs are usually offered as two-year associate degree programs.

Advanced study beyond this basic level of preparation is usually for the purpose of acquiring expanded functions: additional competency in a related area such as in teaching and administration; more extensive preparation in a basic science or in the professional-clinical area; or preparation in a related health specialty. Transferring credit earned in the basic professional curriculum requires the senior institution to approve an educational pattern for advanced study leading to the baccalaureate degree which may represent a departure from its traditional mode of operation. Minimal general education is completed in the first two years of associate degree work in a two-year institution. The curriculum emphasis at this level is on the professional curriculum. Therefore, the transfer student seeking a baccalaureate degree must complete additional general education courses required by the transfer institution. The transfer institution will be expected to accept the professional curriculum completed in the two-year institution as a major field of study. This curriculum pattern is often referred to as the inverted curriculum. It is illustrated in Figure IV.

FIGURE IV. BASIC PROFESSIONAL CURRICULUM: TRANSFER B

ACADEMIC YEARS	ACADEMIC EMPHASES	ACADEMIC AWARDS
1-2*	*Basic Professional Curriculum†*	Associate Certificate or Associate Degree
	General Education	
	Professional Curriculum	
	Practicum	
3-4	*Related Studies*	Baccalaureate Degree
	General Education Course	
	Required for the Degree and Emphasis in One or More of the Following Areas:	
	Teacher Preparation	
	Management and Administration	
	Advanced Professional and Clinical Courses	
	Advanced Related Sciences	

*Usually a two-year institution

†Curriculum examples:

A) Dental Hygiene
B) Respiratory Therapy
C) Radiologic Technology
D) Dental Assistant

3. Intermediate Professional Curriculum: Transfer Model C

The third transfer model is similar to the second model in that the program is usually completed in a post-secondary institution and leads to an associate degree. It differs from Model B in that the course of study completed leads to an intermediate level of professional certification within the discipline, usually an assistant or technician level. Advanced professional status is obtained by transferring to a senior institution which offers the advanced curriculum and awards a baccalaureate degree. The usual objective of advanced education is to obtain advanced professional qualification within the given allied health profession. It should be noted that the traditional route for entry to the baccalaureate program, which awards advanced professional status, *is usually by means of a pre-professional curriculum* rather than through an intermediate professional associate degree program. Examples of the intermediate professional curriculum completed in a two-year institution and the parent professional discipline offered by senior institutions are as follows: medical laboratory technician—medical technologist; physical therapy assistant—physical therapist; medical record technician—medical record administrator; environmental health technician—environmental health technologist; dietetic technician—dietition and nutritionist.

Transfer of credit between these levels of education may be complicated because the relationship between segments of the professional course of study for each level (associate degree and baccalaureate degree) may not have been delineated by the professional association. Often portions of the intermediate level course are also included in the upper division professional curriculum and there is not a comparable course at the lower level which would transfer for full credit to the upper divisional level. To avoid the credit transfer problem this situation poses, some institutions are experimenting with a modular type of curriculum which clearly identifies units in each course. The identification of such units or modules will facilitate identification of knowledge or competencies acquired. The intermediate course of study also includes a minimal number of general education credits which do not satisfy baccalaureate degree requirements, and additional general education courses are usually required by the transfer institution. Because of these problems, as well as the educational option selected by the transfer student for advanced study, more than two additional years are usually required in order to complete the professional curriculum and baccalaureate degree requirements. Clarification of the relationship between lower and advanced level professional courses and experimentation with the modular curriculum may minimize some of the credit transfer problems encountered. This curriculum pattern is illustrated in Figure V.

FIGURE V. INTERMEDIATE PROFESSIONAL CURRICULUM: TRANSFER MODEL C

ACADEMIC YEARS	ACADEMIC EMPHASES	ACADEMIC AWARDS
1-2*	*Intermediate Professional Curriculum†*	Academic Certificate or Associate Degree
	General Education	
	Professional Curriculum	
	Practicum	
3-4	*Advanced Professional Curriculum†* Advanced Professional Curriculum	Baccalaureate Degree
	Practicum	
	General Education Courses Required for the Degree	

*Usually a two-year institution.

†Curriculum examples:

Lower Division (Associate Degree)	*Upper Division (Baccalaureate Degree)*
Physical Therapy Assistant	Physical Therapist
Medical Record Technician	Medical Record Administrator
Medical Laboratory Technician	Medical Technologist
Dietetic Technician	Dietitian
Environmental Health Technician	Environmental Health Technologist
Environmental Health Engineering	Engineering Technology

NOTE: Less than two-year programs such as certified laboratory assistant or medical secretary may transfer to appropriate associate or baccalaureate degree programs.

Allied health courses of study of less than two years duration and leading to an academic certificate may be considered for transfer to appropriate associate or baccalaureate degree programs. These would include programs such as dental assistant, certified laboratory assistant, and medical transcriptionist or secretary. If transfer is to occur from these programs, the amount of credit allowed may be minimal. This particular situation has been considered by study committees in this project but has not been given much emphasis in this report because it is utilized only occasionally.

The relationship of these three transfer models to the various allied health disciplines considered in this project are illustrated in Figure VI.

FIGURE VI. SELECTED ALLIED HEALTH DISCIPLINES* AND TRANSFER MODELS

Two-Year Associate Degree Program	To	Senior Institution Baccalaureate Degree Program
Pre-Professional Curriculum (Two-Years or Associate Degree)		
1. Pre-Professional Curriculum		1. Dietetic and Nutrition 2. Environmental Health 3. Medical Record Administration 4. Medical Technology 5. Physical Therapy
Intermediate Professional Curriculum (Associate Degree)		
1. Dietetic Technology — Nutritional Care — Food Service Management		1. Dietetics
2. Culinary Science		1. Dietetics
3. Hotel and Restaurant Management		1. Dietetics
4. Environmental Science — Occupational Health and Safety — Environmental Engineering Technology		1. Environmental Health 2. Industrial Engineering Technology
5. Engineering Technology		1. Engineering Technology 2. Education
6. Medical Laboratory Technician		1. Medical Technologist
7. Medical Record Technician		1. Medical Record Administrator
8. Physical Therapy Assistant		1. Physical Therapy
Basic Professional Curriculum (Associate Degree)		
1. Dental Hygiene		1. Dental Hygiene 2. Teacher Education 3. Administration
2. Radiologic Technology		1. Radiologic Technology 2. Teacher Education/Administration 3. Nuclear Medical Technology 4. Radiation Therapy
3. Respiratory Therapy		1. Teacher Education 2. Business Administration

*Includes only allied health disciplines in this study.

Graduate level and one-year academic certificate programs not included here.

FIGURE VII. APPROXIMATE QUARTER HOUR CREDITS EARNED IN SELECTED ALLIED HEALTH CURRICULUMS IN TWO-YEAR INSTITUTIONS OF HIGHER EDUCATION IN NORTH CAROLINA

Course of Study	English and Communi-cation	Social Studies and Humanities	Natural Science and Mathematics	Health and Physical Education	Major Field	Other	Total
TWO-YEAR PROGRAMS							
Dental Hygiene	12	6-15	13-28	2-5	64-80	4-6	109-126
Dental Laboratory Technology	12		13		84	6	115
Culinary Science	12	6	5		92	2	117
Food Processing Technology	15	4	3		79	9	110
Dietetic Technician-Food Service Management	12	3-9	6		75-79		106-112
Engineering Technology	9	6	30		48	3	96
Environmental Science	12	6	32		53	9	112
Environmental Engineering Technology	6	6	17		51		80
Medical Laboratory Technician	12	21	15		52	8	108
Medical Records Technician	12	21	15		52	8	108
Occupational Safety and Health	9	6	30		48	3	96
Physical Therapy Assistant	12	20	10		58	6	106
Pre-Professional (Engineering)	9	19	39-43	3		22-27	92-101
Pre-Professional (Physical Therapy)	9	19	39-43	3		22-26	96
Radiologic Technology	6-12	4-6	8-26	2	101-32	2-7	145-158
Respiratory Therapy Technology	12		42		65	7	126
ONE-YEAR PROGRAMS							
Dental Assistant	6	3	4		57		70
Culinary Science	9		5		52		66
Medical Laboratory Assistant	6		7		60		73
Respiratory Therapy	6		12		46		64

ACADEMIC CREDIT

The heart of the articulation problem may be the transfer of academic credit.

Credit for completed academic work may or may not be recognized and accepted by a senior institution.

All course work completed in a pre-professional curriculum (Transfer Model A) should be acceptable to a senior institution because this type of curriculum is designed by two-year institutions to be transfer oriented.

Course work completed in a basic professional curriculum (Transfer Model B) or an intermediate professional curriculum (Transfer Model C) is presently acceptable for transfer credit only in part. This problem is addressed in the recommendations presented in the next chapter. It is a problem which is complicated by the range of credit offered in the various allied health curriculums.

Basic and intermediate level allied health courses of study include both general education and professional courses as illustrated in Figure VII. A minimum of 18 quarter hours of general education is required which includes courses in English and Communication, social studies and humanities, and natural science and mathematics. The number of general education credits earned may be substantially higher because additional general education courses may be required and included in the major or professional curriculum. All general education courses should transfer to the senior institution which may require additional general education courses to satisfy baccalaureate degree requirements.

The amount of professional course credit accepted for transfer to the senior institution will be influenced by the objective for advanced study. If credit has been earned in a basic professional associate degree curriculum, there may be no comparable parallel curriculum in the senior institution with which this curriculum can be equated. The purpose for advanced study, as noted previously, would be to acquire competency in a related field such as in education and administration. The transfer institution is requested to grant full credit for the major or professional curriculum which has been completed in the two-year institution. Some institutions are reluctant to do this.

The student who has completed an intermediate level professional curriculum would be seeking advanced study leading to expanded functions and a higher level of competency in the same professional discipline. The amount of credit allowed for professional courses, including practicum work, may be limited because the relationship between intermediate and upper divisional courses is not clear. Comparable professional courses of study are generally not found in the lower and upper divisional programs although each may require comparable knowledge and skills. Where this situation prevails credit may be allowed by means of examinations and/or breaking courses of study into modular units for comparative and transfer purposes. Transfer guidelines developed in this study apply to these problems.

In the next section, specific problems and recommended guidelines related to the transfer of credit are discussed. These recommendations were developed by the study committee and used in the development of the interinstitutional agreements which may be found in Appendix A.

FOOTNOTES

[1]Dental auxiliaries, medical laboratory specialists, physical therapists, radiologic technologists, medical record specialists, environmental health specialists, dietitians and nutritionists, and respiratory therapists.

[2]Stephen H. Spurr, *Academic Degree Structures: Innovative Approaches* (New York: McGraw-Hill Book Company, 1970) pp. 26-27.

[3]National Commission on Accrediting, *Study of Accreditation of Selected Health Education Programs, Part II — Staff Working Papers* (1972) pp. 1-4.

[4]*Ibid*, I, p. 1.

3 PROBLEMS AND RECOMMENDED GUIDELINES RELATED TO THE TRANSFER OF CREDIT

General problems with the development of policy for the transfer of credit may be traced to several factors—organizational relationships among institutions in North Carolina, differences among programs in senior institutions, differences among public two-year institutions, differences among programs in two-year institutions, and differences among associate level degrees.

No single organization speaks for all post-secondary education in North Carolina. As was indicated in Chapter I, there is a complex variety of institutions in the state. This variety means that uniform policies regulating transfer of credit may not be imposed upon all institutions. Instead, such policies are recommended to senior institutions and each institution complies with them on a voluntary basis. The vehicle for the development and publication of such policies is the Joint Committee on College Transfer Students, which was created in 1965. Transfer guidelines or policies developed under this project will be recommended to the Joint Committee on College Transfer Students.

The development of policy for the transfer of credit is complicated by differences in program requirements in senior institutions. Traditionally, specific course requirements for baccalaureate degrees have been established by each senior institution independent of all others. The resulting diversity in requirements, even when slight, is difficult to address in a statement of policy which is intended to apply uniformly to all institutions.

The development of policy for the transfer of credit is further complicated by the fact that there are two types of institutions within the state's Community College System—community colleges and technical institutions. The difference between these institutions is defined in Section 115A-2 of the General Statutes of North Carolina: A community college is one which "offers the freshman and sophomore courses of a college of arts and sciences" in addition to technical, vocational, and general adult education curricula. A technical institute, on the other hand, is defined as an institution which offers only the technical, vocational, and general adult education curricula. By definition then, technical institutes have not been regarded as institutions concerned with the preparation of students for transfer to senior institutions. However, because allied health education programs are offered by both community colleges and technical institutes, development of a means for transfer from these programs implies an additional function for technical institutes.

Development of policy for the transfer of credit is also complicated by differences among programs in the two-year institutions. The college-parallel program is the primary college transfer program. Technical programs and vocational programs, on the other hand, are designed for immediate employment. Allied health education programs are generally either technical or vocational in nature. Therefore, policies which provide for the transfer of credit from these allied health programs represent a departure from general practice.

Allied health education programs conducted by hospitals or the military are also a concern of this project. In this case, too, policies which provide for the transfer of credit from hospital-based and military-based programs represent a departure from general practice.

Diversity in allied health education programs complicates policy development for the transfer of credit. In the case of medical laboratory technology, programs leading to certification as a certified laboratory assistant (CLA), medical laboratory technician (MLT), and medical technologist (MT) overlap one another in ways that are not clearly defined. On the other hand, programs within the dental auxiliaries are viewed as independent sub-professions. It is difficult, therefore, to develop policies for the transfer of credit which will apply uniformly to all allied health professions.

Differences between programs exist in terms of the general education component of technical and college transfer programs. All allied health programs have a minimum of 18 hours of general education in the areas of English and social sciences. In addition each allied health program may have academically related courses in natural and physical sciences plus additional course work in the social sciences. Although these courses may be considered as professional courses in technical programs, most four-year colleges and universities consider them to be a part of the general education requirement (96 hours). Therefore, the number of credits in general education in allied health programs may realistically exceed 18 hours. The acceptance of technical programs (allied health) for transfer credit *in toto* may mean a substantial change in the sequencing of courses for a baccalaureate degree as well as some change in the requirements for the degree.

A second problem with the general education component is that courses in the same subject may differ because they are designed for technical programs as opposed to college transfer programs. In the case of English, for example, a course for technical programs may require texts and assignments different from those in the English course for the college transfer program. To grant transfer credit for both courses is to ignore the different purposes for which such courses were created in the first place.

Differences among programs may also be expressed in terms of the associate level degrees which are awarded upon completion of programs. The Associate in Arts (A.A.) degree or the Associate in Science (A.S.) degree is awarded for the completion of college transfer programs. The Associate in Applied Science (A.A.S.) degree is awarded upon completion of a technical program. The A.A. and A.S. degrees traditionally have been regarded as degrees which permit transfer to a B.A. or B.S. program. Generally the A.A.S. has not been regarded as one which would transfer. This presents a problem for allied health education programs because they usually lead to an A.A.S. degree. As in other respects, policy providing for the transfer of credit from these programs means a departure from general practice.

One notable exception to these generalizations about associate-level degrees exists in a special baccalaureate degree which is offered by at least two institutions in the state (UNC-Charlotte, Appalachian State University). It is the Bachelor of Technology (B.T.) degree. Transfer students with A.A.S. degrees in engineering and business technologies may enter such a baccalaureate program with little loss of credit for their first two years of work. The B.T. degree, however, does not accept A.A.S. degree students from applied health programs at this time. A second exception to the general non-transferability of A.A.S. degree credits is a modified B.S. degree program which accepts course work in the allied health field as the academic major.

Creation of a special baccalaureate for A.A.S. degree students in allied health programs or expansion of B.T. programs to include such students would greatly minimize problems in the development of policy for the transfer of credit between the two degree levels. In effect it would provide a three track approach to the baccalaureate degree with the A.A. leading to the B.A., the A.S. leading to the B.S., and the A.A.S. leading to the B.T. However, development of such clearly identified paths of study and transfer is likely to invite informal labelling of one path as second-rate or inferior—a problem not easily controlled by those who create new policies and programs.

All of the factors discussed above indicate the context in which consideration of policies for the transfer of credit in allied health education programs has occurred.

THE DEFINITION AND PURPOSE OF TRANSFER

Transfer may involve moving from one program to another in a two-year institution or senior institution, moving from one two-year institution to another or from one senior institution to another, or moving from a two-year institution to a senior institution.

The purpose or value of the baccalaureate degree in certain allied health professions has not been entirely clear up to this time. Furthermore, the kinds of programs to which allied health professionals might transfer have not been fully identified. In addition to the transfer models identified in Chapter II, the following statements about the purpose of transfer for allied health professionals are intended to clarify this situation:

Allied health professionals should have the opportunity for career mobility and advanced higher education according to individual interests and ability.

Allied health professionals should be able to transfer in order to further their education in any of the following areas: advanced professional education (MLT transfer to MT), advanced and other professional education (teacher education, administrator education), advanced education in a related science (chemistry, anatomy), or expanded liberal arts education.

The advanced professional education option is described in the previous chapter as Transfer Model C: Intermediate Professional Curriculum. Other professional education and advanced education in a related science are options included within Transfer Model B: Basic Professional Curriculum. Most transfer problems in the allied health disciplines are related to these two transfer models. Specific problems and their solutions in the form of recommended guidelines appear in the sections which follow.

PROBLEMS INVOLVING CRITERIA FOR ADMISSIONS

Problem. Articulation encourages upward career mobility at the same time that space in applied health programs in senior institutions is limited. This guideline is intended to address this conflict:

1. **Students who demonstrate ability in their work at the two-year college level and/or in successful practical experience should be encouraged to continue their education in the allied health professions.**

Problem. Completion of an associate degree program could be required as evidence of a student's ability for and interest in advanced education. Strong support for associate level degrees could be demonstrated in these guidelines by recommending that all students who wish to transfer should hold such a degree. The merit of such a recommendation is that it would simplify the development of transfer guidelines.

However, such a recommendation could prove to be inconsistent with the general goal of this project which is provided opportunity for upward career mobility. Requiring an associate degree in every instance could prevent some very able people from advancing in their professions. A second consideration is that students in technical institutes are likely to receive more credit for their lower division work if they transfer as soon as possible rather than completing their program in the technical institute. If a student knows during the first year of work that he would like to transfer, he will probably save himself time by transferring at the end of his freshman year. This guideline is intended to meet all of these considerations:

2. **Normally transfer students to senior institutions should be expected to possess an associate degree or to have completed two years of study in a post-secondary institution. Possible exceptions to this guideline are as follows:**

   a. Allied health professionals with successful experience who lack an academic background.

   b. Allied health students in technical institutes for whom early transfer would be advantageous.

Problem. The Associate in Arts (A.A.) degree and the Associate in Science (A.S.) degree are awarded upon completion of transfer programs. Such programs are offered by community colleges in North Carolina. The Associate in Applied Science (A.A.S.) degree is awarded for completion of a technical program. Technical programs are offered by both community colleges and technical institutes in North Carolina. The intent of this guideline is to provide an opportunity for transfer for allied health professionals with A.A.S. degrees from community colleges and technical institutes:

3. **The holder of an associate degree (A.A., A.S., or A.A.S. whether granted by a junior college, community college, or technical institute) who has completed a nationally accredited allied health education program and who is professionally certified should be considered for admission as a transfer student.**

Problem. Often completion of an A.A.S. degree program is not regarded as acceptable evidence of a student's ability or academic preparation for advanced work. When this is the case, completion of certain high school units (e.g., four years of English or three years of mathematics) may be required. Such a requirement generally will discourage a student from attempting to transfer or if he does transfer, lengthen the time it will take him to earn the baccalaureate degree. The following guideline is intended to minimize this problem:

4. **The admission of A.A.S. degree students should be based upon work completed for the degree. Such students should not have to meet high school unit requirements which are inappropriate to the baccalaureate degree they are seeking.**

5. **Two-year college students who are ineligible to enter a four-year institution at the freshman level because of poor high school records should not be denied admission as transfer students on these grounds. (Joint Committee on College Transfer Students)**[1]

Problem. Certified allied health professionals who have completed some college work but lack a degree may be discouraged from attempting to transfer if they must fulfill high school unit requirements. The following guideline is intended to minimize this problem:

6. **Transfer applicants who do not hold an associate degree but who have fulfilled requirements for certification in a specific allied health field should not have to meet high school unit requirements which are inappropriate to the baccalaureate degree they are seeking.**

PROBLEMS INVOLVING CREDIT

Problem. The amount of transfer credit which a student receives determines to a large extent the length of time it will take to obtain a baccalaureate degree. Since the A.A.S. degree has not been regarded generally as one which leads to transfer, there is a question of how much credit may be applied to a baccalaureate degree. If work toward the A.A.S. degree is accepted as two full years of credit toward the baccalaureate, a transfer student with an A.A.S. degree should be able to complete work for the baccalaureate degree in an additional two years. At the other extreme, if little credit is given for the A.A.S. degree course work and a student with such a degree is accepted for transfer, nearly four additional years of work may be required for the baccalaureate. This guideline attempts to advocate that some course work toward the A.A.S. degree should be given credit toward the baccalaureate degree but without specifying the amount:

7. **Transfer students in the allied health professions should have the opportunity to continue their education without unnecessary loss of time. However, it should be recognized that the A.A.S. degree may fulfill less than half of the credit requirements for the baccalaureate degree. A transfer student with an A.A.S. degree may be required to take more than two years beyond the A.A.S. degree to obtain a baccalaureate degree because of the educational option he elects, institutional and professional requirements, and the sequence and organization of courses.**

Problem. Any delay in the evaluation of a transfer student's transcript works to his disadvantage. Validating mechanisms, for example, function after a student has completed his course work. This means that he does not know until the validating mechanism has been applied whether or not he will receive transfer credit for a course. This further means that the transfer option as such has not been clearly spelled out. The situation then is in conflict with a general goal of this project which is to make transfer options as clearly understood as possible and to make as clear as possible the requirements and procedures for transfer.

8. **Prior to registration at a senior institution, preferably at the time of acceptance, a transfer student's transcript should be evaluated and the student should be notified of the transfer credit which he will be given for general academic course work and for professional courses where possible. Additional professional courses should be evaluated as soon as possible after enrollment in order to notify the student of the credit which he will be given.**

Problem. Professional courses in allied health programs leading to the A.A.S. degree generally are not regarded as transfer courses. If they are to be accepted for transfer credit, there is a problem of how much credit should be given for such work.

Related to this problem is the distinction between lower division and upper division work which may be an artificial barrier to articulation. At least since the time of Harper at the University of Chicago, faculty and administrators in senior institutions have thought they understood the difference between upper division and lower division work. Generally, lower division work is considered to be of an introductory nature and upper division work is considered to be of an advanced nature usually resulting in specialization in some discipline. Wherever this distinction is upheld it poses a special transfer problem. A transfer student from an allied health program who has the A.A.S. degree plus certification in a profession and who does not intend to take additional professional courses at the senior institution will in effect be asking the senior institution to regard professional course work as the equivalent of an upper division major. This then leaves a student with the need to satisfy general education requirements, most of which are of a lower division nature. The net effect of this situation is that the transfer student will have completed work mainly of a lower division nature for the baccalaureate degree. As some critics point out, this is an attempt to make two associate level degrees equal to one baccalaureate degree. Viewed from another perspective the problem is a question of what the professional course work should be accepted in lieu of at the senior institutional level.

9. **Transfer students within and between educational institutions who have completed their work in an accredited allied health program and who have passed a state licensure examination or have national certification should be granted optimum credit for their *professional course work* by utilization of an appropriate method of validation such as review of course content, demonstration of clinical skills, and CLEP institutional examinations.**

10. **Transfer students within and between educational institutions who have completed their work in an accredited allied health program and who have passed a state licensure examination or have national certification should be granted optimum credit for their *practicum or clinical work* by utilization of an appropriate method of validation such as review of course content, demonstration of clinical skills, and CLEP and institutional examinations**

Problem. Certificate programs in hospitals vary in the quality and scope of work offered. This variety complicates the development of uniform transfer guidelines dealing with such programs. This guideline attempts, however, to support the opportunity for transfer from a hospital-based or military-based program on at least an individual basis.

11. **Any graduate of an approved hospital-based or military-based certificate program in the allied health professions who has passed the certification examination shall upon admission to an appropriate two-year or senior institution be granted optimum credit for previous experience in the hospital-based program on an individual basis by utilization of an appropriate method of validation such as review of course content, demonstration of clinical skills, and CLEP and institutional examinations.**

Problem. Many in the allied health professions are employed without certification. Others were certified at an earlier date when certification requirements were lower than they are now. Presumably upward career mobility should be available to individuals in both of these categories. This guideline attempts to identify an avenue of upward career mobility based upon academic course work:

12. **Since the likelihood of obtaining academic credit for previous experience is greater in a two-year institution than a senior institution, individuals who lack certification or whose professional training is dated or whose professional training is current but not documented should be encouraged to start academic work in a technical institute or a community college. Such institutions should validate knowledge acquired through experience. (This is not intended to discourage allied health professionals who lack academic backgrounds from starting their work in senior institutions if such a procedure will be most advantageous to them.)**

Problem. College level courses offered through university and college extension centers or contractual programs award credit which in some instances has not been regarded as transferable. This situation penalizes individuals who have attempted to improve themselves and their career mobility through educational experiences on a part-time basis.

13. **Receiving institutions should accept credit for college level courses offered by accredited institutions in university or college extension centers and in contract with technical institutions. (Joint Committee on College Transfer Students)**

Problem. Some college level courses may be completed prior to graduation from secondary school. In a transfer situation there may be reluctance to accept credit obtained in this fashion.

14. **College level courses completed at accredited collegiate institutions prior to secondary school graduation should be evaluated in the same manner as other courses which may appear on the institutions' transcripts. (Joint Committee on College Transfer Students)**

Problem. Challenge examinations enable a student to demonstrate mastery of subject matter without taking a course. Procedures for recording such examinations on transcripts appear to vary and may complicate transfer to another institution. This guideline is intended to minimize such complications:

15. **Two-year institutions should indicate on their transcripts when credit has been given by challenge examination. Furthermore, the grade received on the challenge examination should be indicated on the transcript as the grade for the course.**

Problem. Challenge examinations appear to be a useful device for allowing students to obtain credit for knowledge acquired. However, the device may be a mixed blessing because it places a burden on the student to "prove himself" a second time in order to receive credit. This guidelines is intended to curb indiscriminate use of challenge examinations:

16. Challenge examinations or other mechanisms may be used to validate health professional experiences and allied health courses which have not been covered in existing transfer guidelines published by the Joint Committee on College Transfer Students.

Problem. Knowledge may be obtained through means other than formal course work in an institution of higher education. Examinations have been developed by the College Level Examination Program (CLEP) of the College Entrance Examination Board which will permit an individual to demonstrate the knowledge he has acquired in general education and in selected subject matter fields. Scores achieved on these examinations may be equated to credit acquired in the conventional manner, but there may be reluctance on the part of institutions to recognize such examination scores for the purpose of transfer credit. The following guidelines are intended to address this problem:

17. All institutions of higher education are encouraged to make use of the CLEP General Examinations to the extent and in a manner appropriate to institutional purposes and curricular requirements. (Joint Committee on College Transfer Students)

18. Institutions which adopt the General Examinations are encouraged to award credit for scores at or above the 25th percentile of the national sophomore norms of the General Examinations—the minimum recommendation of the College Entrance Examination Board. (Joint Committee on College Transfer Students)

19. All institutions of higher education are encouraged to adopt the use of CLEP Subject Examinations to the extent appropriate to curricular requirements. Credits should be awarded for scores at or above the average score made by "C" students in the national norms of the Subject Examinations — the minimum recommendation of the College Entrance Examination Board. (Joint Committee on College Transfer Students)

20. Receiving institutions should accept directly in transfer both *elective* and *required* credits awarded on the basis of CLEP Subject Examinations to the extent appropriate to curricular requirements. (Joint Committee on College Transfer Students)

21. Receiving institutions should accept for transfer credits in the major field of study when awarded on the basis of CLEP Subject Examinations. (Joint Committee on College Transfer Students)

PROBLEMS INVOLVING GRADES

Problem. Some two-year institutions have adopted a concept of learning based upon behavioral objectives and a grading system using A, B, C, and I. Under this system a student may be given an "I" because he has not fulfilled the objectives of the course at an acceptable level. If he later fulfills the objectives, the "I" grade is replaced with A, B, or C. These guidelines are intended to provide a means of informing senior institutions when such a grading system is in effect:

22. All institutions of higher education should use the definition for an incomplete grade contained in the United States Office of Education's 1968 publication, *Definitions of Student Personnel Terms in Higher Education*, OE-50083.

> **a grade used when the instructor is not able to give a definite grade for the term in view either of sickness of the student or of some other justifiable delay in the completion of certain work. A permanent grade for the term is recorded when work has been completed. (Joint Committee on College Transfer Students)**

23. If an institution assigns an "incomplete" for evaluations other than those indicated in the above definition, that institution should identify the various types of incomplete grades on the transcript and attach to each transcript a definition of the various types being used. (Joint Committee on College Transfer Students)

Problem. Pass/fail grades do not convey enough information to senior institutions about the demonstrated ability of the student in the course in which the grade was given. Therefore, additional information must be obtained usually in the form of a letter to the instructor who taught the course. It appears desirable to avoid this situation whenever possible. However, pass/fail grades should not prevent a student from transferring or receiving credit for work completed under such a grading procedure.

24. Potential transfer students should be advised to avoid taking course work in the professional area and the basic sciences on a pass/fail basis if they have the option to do so. Receiving institutions should consider on an individual basis each student who wishes to transfer from an institution using either the pass/fail or satisfactory/unsatisfactory grading system. Other criteria such as high school records, standardized test scores, and college credit earned with traditional grades may be used in determining the transferability of that student.

25. In determining admissibility, P-F or S-U grades should not be given quality point values and should not be used in quality point ratio computation. (Joint Committee on College Transfer Students)

26. Receiving institutions should not place a limit on the number of transferable credits because these credits were earned with P or S grades. (Joint Committee on College Transfer Students)

Problem. Students who receive "D" grades but are not given transfer credit for them are not treated the same as a senior institution's native students. The intent of this guideline is to alleviate this transfer problem:

27. Provided the transfer student meets the receiving institution's admissions requirements, credit for all passing grades from the sending institution should be accepted as transfer credits. This would mean, in terms of grades, that a transfer student encounters neither advantages nor disadvantages over a native student. (Joint Committee on College Transfer Students)

PROBLEMS INVOLVING CURRICULUM

Problem. Course work in general education may represent the most difficult articulation problem. General education course work in A.A.S. degree programs is not always regarded as transferable. There are questions then as to whether or not general education course work in an A.A.S. degree program (usually 18 quarter hours) should receive transfer credit, whether or not such course work is sufficient for a baccalaureate degree, and how credit for general education course work is determined. The problem stems from the fact that community colleges and technical institutes have attempted to design courses in the basic sciences, the social sciences, and the humanities to meet the immediate and practical needs of students in technical programs. The more that general education course work satisfies such needs, the less likely it is that it will be accepted as the equivalent of courses in senior institutions. Courses at the senior institution level in the basic sciences, the social sciences, and the humanities tend to be an introduction to the discipline that the course represents. In other words, so-called general education courses may be pursuing different goals at the two-year institution level and the senior institution level.

It should be noted, however, that community colleges have attempted to make their general education courses equivalent to senior institution courses and normally require such courses in their college transfer program. Students in allied health programs in community colleges may or may not meet their general education requirements with courses from the college transfer program.

28. Where practical, prospective transfer students in community colleges should be advised to take general education course work considered to be acceptable in senior institutions.

29. Transfer students from an A.A.S. degree program should be granted optimum credit for their general education course work by utilization of the most effective method of validation.

30. General education requirements normally are met at the lower division level, but transfer students with the A.A.S. degree may be required to meet other general education requirements for the baccalaureate degree.

Problem. Courses are offered in one-year, two-year and four-year institutions which are not accepted as transfer credit because the receiving institution has no "parallel" course. In many instances, these courses, although having no parallel, are quite specific to an area of major study into which the student wishes to transfer. In other instances the courses, although not specific to the major interest area of the students, are "college level" courses and could appropriately serve as elective credits or a minor area of study.

31. Courses taught in one-year, two-year and four-year institutions which are applicable and appropriate to a major area of study should be accepted for transfer for application to that major area even though the receiving institution has no such "parallel" courses.

32. Courses offered in one-year, two-year and four-year institutions for which the receiving institution has no parallel and which are not specific to the major area of study of the transfer student should be considered favorably for

acceptance as electives or for "minor" requirements. The amount of credit transferred in this manner could be accepted as fulfillment of a minor requirement but not a major requirement.

Problem. Differences among allied health professions complicate the development of unform transfer guidelines. For example, in the medical laboratory profession, the CLA program consists of courses which are introductory to the MT program. And the MLT program is introductory to the MT program in the same fashion. This means that a student transferring from one program level to the next needs recognition for the introductory aspects of each course at the upper level which he has mastered at the lower level. A different situation prevails in the dental auxiliaries. In this area, the dental laboratory technician, the dental assistant, and the dental hygienist are viewed as members of independent sub-professions. Lateral transfer from one of these programs to another is not considered a problem. In some professions, baccalaureate programs are just being developed.

33. In the context of these guidelines, specific guidelines for transfer of credit between levels of professional education should be developed by each allied health profession to meet the unique characteristics of the profession.

Problem. Students pursuing a basic professional curriculum (Transfer Model B) may find that the institution to which they are transferring does not offer upper division work in their allied health discipline. This is likely to mean that they will not increase their allied health professional competencies as a result of transfer.

34. Transfer students in the allied health professions should be required to take advanced professional course work for the baccalaureate degree. Institutions willing to accept transfer students in allied health professions but lacking facilities and expertise to offer advanced professional courses should offer such work through interinstitutional arrangements with institutions possessing appropriate facilities and expertise.

35. A Bachelor of Health Science degree should be established as a way of reducing proliferation of special degrees in the allied health professions and as a way of providing a program that is of an advanced or upper division nature.

Problem. In recent survey of all public two-year institutions in North Carolina, 40 indicated that they permit vocational students within their institutions to transfer into technical programs; *16* reported that they do not permit such transfer. At the same time, only *9* out of *40* reported that they give full credit for courses completed in a vocational program to a student within their institution transferring to a technical program. Clarification of which courses are acceptable in this transfer situation will ultimately aid in improving transfer from the two-year to senior institution level.

36. Two-year institutions should establish guidelines for transfer from vocational to technical programs in the same allied health profession.

PROBLEMS INVOLVING STUDENT SERVICES

Problem. There appears to be an unexamined assumption underlying much of the discussion about transfer guidelines. The assumption is that the students for whom the guidelines are being written will be readily and easily identified in two-year institution programs. The assumption is particularly evident when it is suggested that transfer options be made known to students or it is concluded that transfer will be made easier if a student takes general education courses which are part of a college transfer program. The fact of the matter may be that students in allied health professions become interested in transfer only after very successful performance in the first year or first year and one-half of their two-year programs. This means that the time has passed when they might have followed an option which would have better prepared them for transfer. In the case of general education courses, this means taking the courses again at the senior institution level, if such courses are not recognized as college transfer courses. These guidelines are intended to provide means of keeping students aware of transfer opportunities:

37. Two-year institutions should be responsible for maintaining current information on transfer in the allied health professions.

38. The performance of students with a potential for transfer should be closely monitored by counselors and faculty who should advise students about possible transfer early in their technical or vocational program.

Problem. Because transfer students represent only a small portion of a senior institution's student population, they are often overlooked in a variety of ways. The guidelines below are intended to improve this situation:

39. Senior institutions should designate individuals in admissions to have responsibility for transfers in the allied health professions.

40. Faculty in allied health professions programs in senior institutions should be involved as early as possible in the process of admitting transfers.

41. Transfer students should be given the same consideration for the financial aid available in a senior institution as its native students.

42. Special orientation sessions should be provided by senior institutions for transfers in the allied health professions.

43. Transfer students should be given the same opportunity to enroll in courses as native students.

PROBLEM INVOLVING INSTITUTIONAL AUTONOMY

Problem. Transfer guidelines are meant to be voluntary so as to preserve institutional autonomy. The problem is to develop guidelines which promote a uniformity of practice that is greater than a series of bilateral agreements and at the same time to recognize institutional autonomy. The intent of this guideline is to preserve the balance between autonomy and uniformity of practice:

44. All institutions of higher education should be encouraged to approve these guidelines. Furthermore, all institutions should publish their policies relating to transfer credit in allied health education programs.

SUMMARY

These guidelines were developed to aid transfer of credit for selected allied health disciplines. With these recommendations as a guide, the study committees developed interinstitutional agreements for each discipline. Special problems encountered by each discipline and these agreements are presented in Appendix A.

FOOTNOTES

[1]Joint Committee on College Transfer Students, *Guidelines for Transfer* (Chapel Hill: The University of North Carolina, 1973). Other recommendations of the Joint Committee are included with these guidelines and are so identified. Recommendations of the Joint Committee not included with these guidelines may also be appropriate to special problems in the transfer of credit.

APPENDIX A

STATUS OF EACH ALLIED HEALTH PROFESSION

AND

RECOMMENDATIONS FOR THE TRANSFER OF CREDIT

CONTENTS

[1] INTERMEDIATE PROFESSIONAL CURRICULUMS

Dietetics and Nutrition 30

Environmental Health 38

Medical Laboratory Technology 50

Medical Record Administration 56

Physical Therapy Assistant 62

[2] BASIC PROFESSIONAL CURRICULUMS

Dental Auxiliaries 66

Radiologic Technology 72

Respiratory Therapy 76

[1] / *DIETETICS AND NUTRITION*

STATUS OF DIETETICS AND NUTRITION

Dietetics as an organized profession dates from the founding of the American Dietetic Association during World War I. From the beginning, the members of the profession were involved in diverse activities, both in civilian and government services: therapeutic dietitians, specialists in nutritional science in hospitals; administrative dietitians and managers of food services in hospitals as well as in educational institutions, and business and industry; and directors, educators, and consultants for nutrition clinics and community nutrition services. Thus, "the dietitian is a 'translator' of the science of nutrition into the skill of furnishing optimal nourishment to people. The word 'translator' is used in its familiar context of translating ideas into action. This concept starts with the same beginning (the science of nutrition) and arrives at the same end point (the optimal nourishment of people) no matter what the particular role of the dietitian or the purpose of his employing institution may be."[1]

Since optimal nourishment is fundamental to the growth and development of a human being, to the continuing maintenance of health and well-being and to the recovery from illness and disability, dietetics is a health science.

The point to be made is that the ideas to be translated are the same for every dietitian—they are the knowledge of *nutrition science*. Beyond this, the knowledge and skills used by the dietitian in the art of translation are unique to the specific role which he assumes. The differentiation of dietitians is not in their basic scientific knowledge but in their subsidiary knowledge and skills required for a specific function of translation.

Because dietetics is a health science, dietitians must be considered to be health professionals. Thus, their education needs to be similar to that of health professionals generically. This declaration demands that the education of a specific health professional be built around a unifying principle. Only with the consistent adherence to such a unifying principle can the relevant portions of scientific disciplines be chosen and coordinated. Only with adherence to a unifying principle can there be concurrent, relevant learning of both knowledge and skill. Only with a unifying principle can there be educational efficiency and the elimination of duplication.

If the profession of dietetics is to recruit enough students, the baccalaureate program must be capable of accepting transfer students from a variety of institutions. The preparation of the dietetic technician and assistant, therefore, must be carefully formulated so as to provide for student transferability among two-year and four-year institutions.

Several career options are available in dietetics and nutrition at the associate degree level. These include the following: dietetic technician and food service managers in hospitals and other health care facilities; school and college food service managers; hotel-restaurant managers; and culinary specialists. Students completing one of these programs may elect to transfer to a senior institution and complete work leading to a baccalaureate degree with a major in dietetics with a curriculum emphasis in management systems, clinical nutrition, community nutrition, or generalized dietetics. A general career model for dietetics is outlined in Figure VIII.

TRANSFER OF CREDIT

The opportunity for the transfer of credit between programs in North Carolina is illustrated in Figure IX. And in Figures X, XI, XII and XIII proposed articulation agreements between Pitt Technical Institute, Coastal Carolina Community College, Lenoir County Community College, and Wayne Community College and East Carolina University are detailed.

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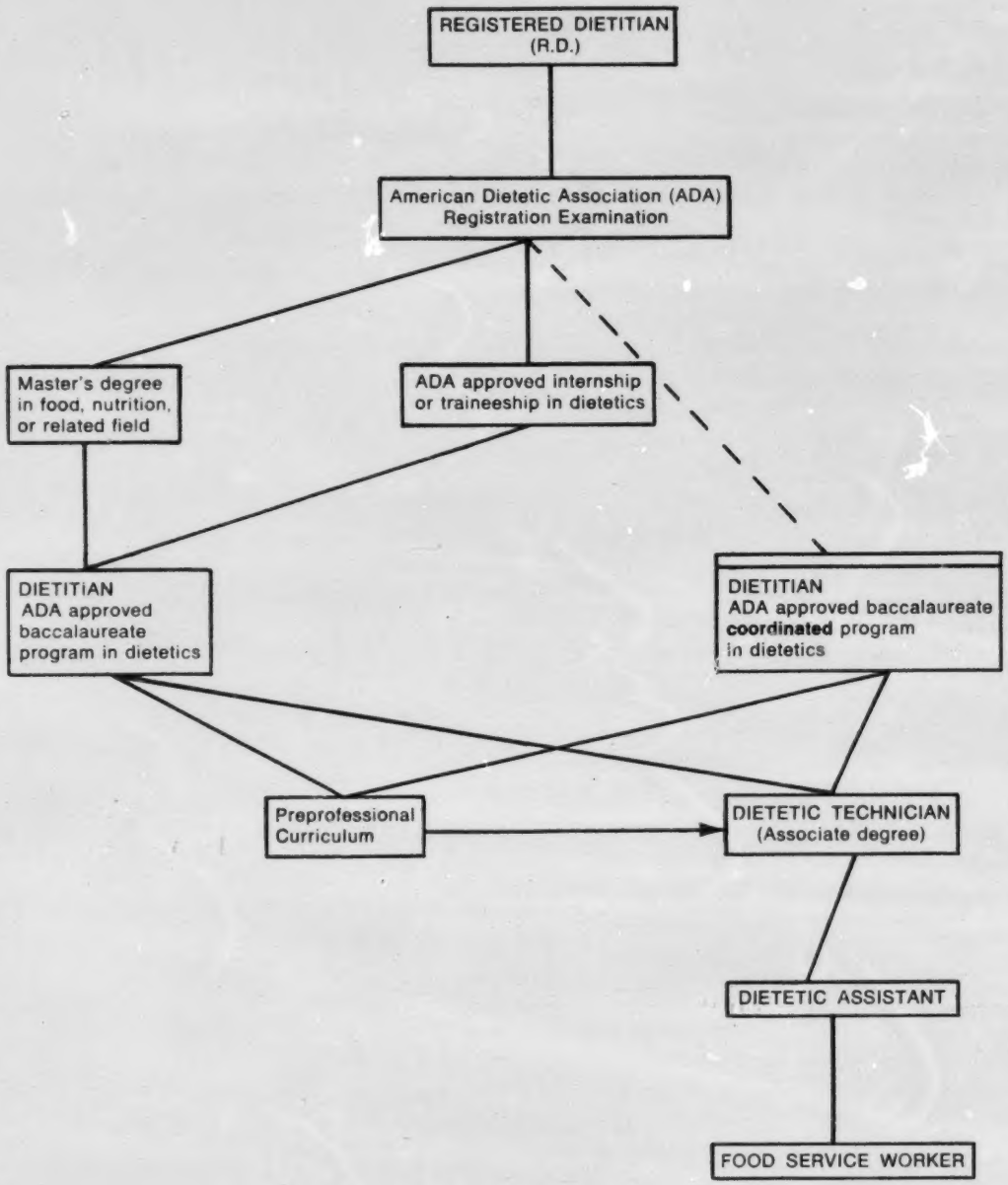
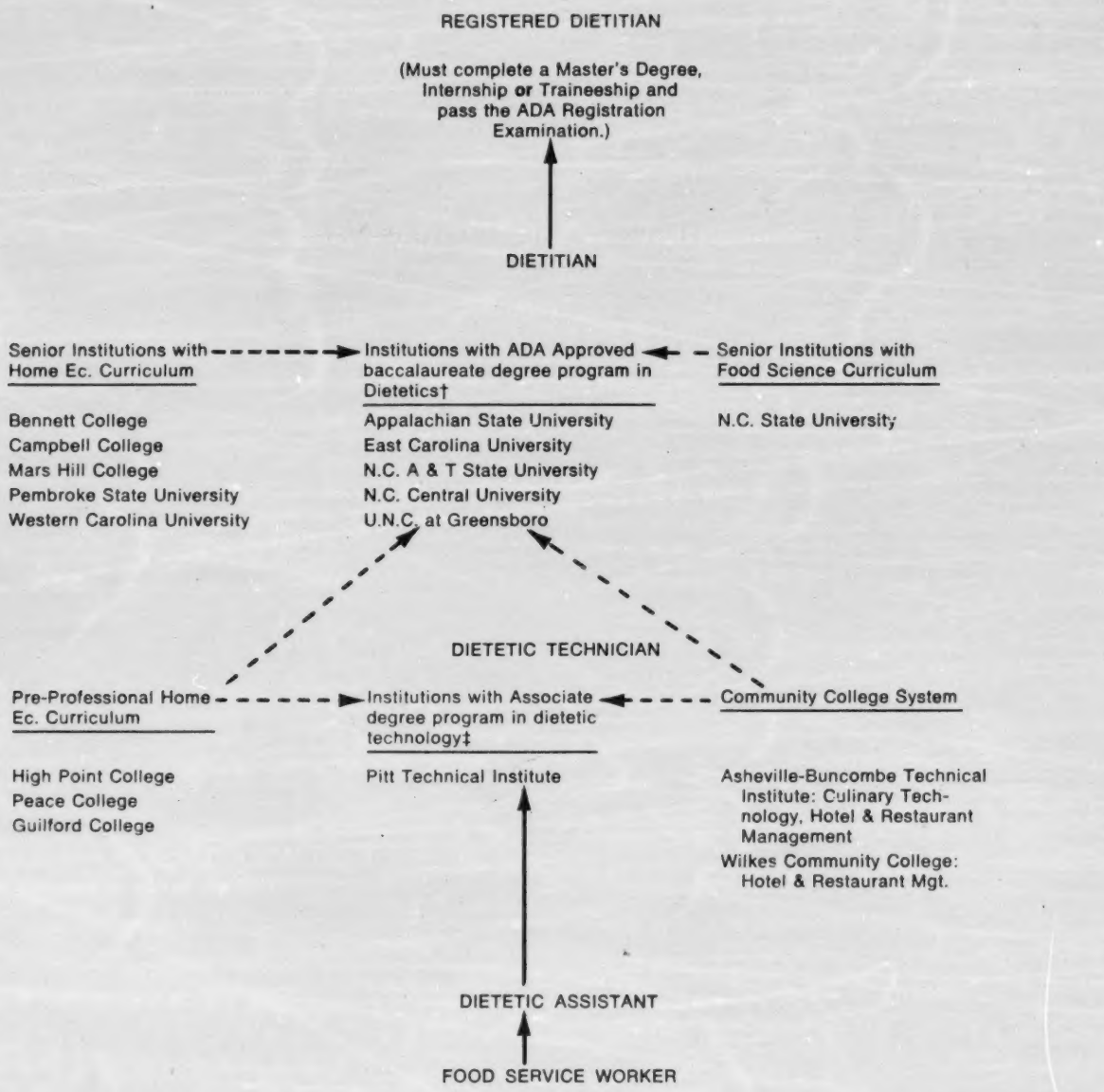
[1]*The Profession of Dietetics*. The Report of the Study Commission on Dietetics, The American Dietetic Association, 1972, page 18.

FIGURE VIII. CAREER LADDER AND LATTICE IN DIETETICS


REGISTERED DIETITIAN (R.D.)
American Dietetic Association (ADA) Registration Examination
Master's degree in food, nutrition, or related field
ADA approved internship or traineeship in dietetics
DIETITIAN ADA approved baccalaureate program in dietetics
DIETITIAN ADA approved baccalaureate coordinated program in dietetics
Preprofessional Curriculum
DIETETIC TECHNICIAN (Associate degree)
DIETETIC ASSISTANT
FOOD SERVICE WORKER

ADA—American Dietetic Association

FIGURE IX. . CAREER LADDER IN DIETETICS AND OPPORTUNITIES FOR TRANSFER IN NORTH CAROLINA*


REGISTERED DIETITIAN
(Must complete a Master's Degree, Internship or Traineeship and pass the ADA Registration Examination.)
DIETITIAN
Senior Institutions with Home Ec. Curriculum
Institutions with ADA Approved baccalaureate degree program in Dietetics†
Senior Institutions with Food Science Curriculum
Bennett College
Campbell College
Mars Hill College
Pembroke State University
Western Carolina University
Appalachian State University
East Carolina University
N.C. A & T State University
N.C. Central University
U.N.C. at Greensboro
N.C. State University
DIETETIC TECHNICIAN
Pre-Professional Home Ec. Curriculum
Institutions with Associate degree program in dietetic technology‡
Community College System
High Point College
Peace College
Guilford College
Pitt Technical Institute
Asheville-Buncombe Technical Institute: Culinary Technology, Hotel & Restaurant Management
Wilkes Community College: Hotel & Restaurant Mgt.
DIETETIC ASSISTANT
FOOD SERVICE WORKER

*Based upon Existing Programs in North Carolina

†These institutions also have the Home Economics Curriculum in addition to Specialization in Nutrition and Dietetics.

‡American Dietetic Associaton has established minimum essentials for dietetic technician program and is currently requesting authority to accredit these programs.

FIGURE X. PROPOSED ARTICULATION AGREEMENT BETWEEN THE DIETETIC TECHNOLOGY PROGRAM AT PITT TECHNICAL INSTITUTE AND THE DIETETICS PROGRAM AT EAST CAROLINA UNIVERSITY

Dietetic Technology Curriculum (AAS Degree)			Dietetics Curriculum (BS Degree)		
PITT TECHNICAL INSTITUTE			**EAST CAROLINA UNIVERSITY**		
ENG 102	Composition	3	ENG 1	Composition	3
ENG 204	Oral Communications	3	SPCH 180	Business & Prof. Speech	3
ENG 206	Business Communication	3	ENG 3	Composition	3
PSY 102	General Psychology	3	PSYC 50	General Psychology	3
ECO 102	Economics	3	ECON 111	Introd. to Economics	3
SOC 102	Principles of Sociology	3	SOCI		3
BIO 107	Human Anatomy & Physiology	5	BIOL 121	Human Phys. & Anat. I (4)	5
BUS 120	Accounting	5	ACCT 140	Principles of Acct. (3)	5
CHM 101	Chemistry	5	CHEM 34	Basic General Chem. (4)	
*CSP 110	Food Service Practicum I	8			
*CSP 203	Food Service Practicum II	4	*HOME 345	(6) Food Service Practicum	6
*CSP 214	Food Service Practicum III	4			
			HOME 5	Food	30
			HOME 105	Nutrition	
Courses taken at East Carolina University for the AAS Degree awarded by Pitt Technical Institute			HOME 205	Advanced Food	
			HOME 303	Food for Children	
			HOME 327	Food Purchasing & Cost Cont.	
			HOME 328	Quantity Food	
			HOME 330	Inst. Mang. & Org.	
			HOME 360	Independent Study (Institution Equipment)	
Electives: ENG 103 (3)—Report Writing; BUS 115 (3)—Business Law; BUS 101 (3)—Introduction to Business BUS 102 (3)—Typewriting EDP 104 (3)—Introduction to Data Processing HEA 110 (3)—First Aid					18
					87

(NOTE: 87 of the 116 quarter hours transfer)

Upon transferring to East Carolina University, the student would be required to complete the following courses leading to a B.S. degree in Dietetics

HOME 103	Family Relations;	HOME 202	Preschool Child;	HOME 325	DIET in Disease;	36
HOME 126	Consumer Education;	HOME 225	Advanced Nutrition;	HOME 351	Seminar;	
HOME 134	Textiles;	HOME 290	Home Management;	HOME 390	Home Management Experiences;	
HOME 180	Interior Decorating;	HOME 321G	Adult Education;	HOME 392	Management of Time and Human Resources;	
ENGL 2, Composition; LIBS 1, Research Skills						4
Natural Sciences: CHEM 35, Basic Organic Chemistry; 36, Basic Biochemistry BIOL 122, 123, Human Physiology & Anatomy II, III BIOL 110, Fundamentals of Microbiology PHYS 5, Basic Physics I, Physics and the Environment						22
Social Science: PSYC 241 or 242, Personnel & Industrial Psychology I or II PSYC 305, Educational Psychology, SOCS elective (3)						11
Humanities and Fine Arts: ART 15 plus electives from each area						12
PHYE 12, Health in Modern Societies						1
Electives						17
						103
					TOTAL	190

*Supervised field placement

FIGURE XI. PROPOSED ARTICULATION AGREEMENT BETWEEN COASTAL CAROLINA COMMUNITY COLLEGE AND EAST CAROLINA UNIVERSITY PROGRAM IN DIETETICS

COASTAL CAROLINA COMMUNITY COLLEGE—Associate in Arts Degree	Quarter Hrs.
English 101, 102, 103	9
English Literature 201-202	10
History 101, 102, 103	9
Mathematics 102, 103	10
Biology 121, 122, 123 (in place of Biology 101, 102, 103)	14
Art 101 or Music 101	5
Sociology 201	5
Political Science 201	5
Foreign Language (not required for B.S. degree program at ECU)	9
Health and Physical Education (credit in both areas)	6
Electives: Economics 201, Psychology 201, plus electives	14
	96

The student transferring to East Carolina University from Coastal Carolina Community College who has completed the above courses would have met the requirements in English, Mathematics, Social Studies, Health and Physical Education, and Humanities and Fine Arts for the East Carolina University General Education.
Upon transferring to East Carolina University, the student would be required to complete the following courses leading to a B.S. degree in dietetics.

HOME 5, Food; 103, Family Relations; 105, Nutrition; 126, Consumer Education; 134, Textiles; 180, Interior Decorating; 202, Preschool Child Behavior and Development; 205, Advanced Food; 225, Advanced Nutrition; 290, Home Management; 321G, Adult Education; 325, Diet in Disease; 327, Food Purchasing and Cost Control; 328, Quantity Food; 330, Institution Management and Organization; 340G, Institution Equipment; *345, Food Service Practicum; 351, Seminar; 390, Home Management Experiences; 392, Management of Time and Human Resources	69 Q.H.
CHEM 34, Basic General Chemistry; 35, Basic Organic Chemistry; 36, Basic Biochemistry	12 Q.H.
PSYC 241, Personnel and Industrial Psychology I; or 242, Personnel and Industrial Psychology II; 305, Educational Psychology	8 Q.H.
ART 15, Color and Design	3 Q.H.
ACCT 140, Principles of Accounting	3 Q.H.
PHYS 5, Basic Physics I, Physics and the Environment	4 Q.H.
	99 Q.H.
TOTAL	195 Q.H.

*Supervised field placement

FIGURE XII. PROPOSED ARTICULATION AGREEMENT BETWEEN LENOIR COUNTY COMMUNITY COLLEGE AND EAST CAROLINA UNIVERSITY PROGRAM IN DIETETICS

LENOIR COUNTY COMMUNITY COLLEGE—Associate in Arts Degree	Quarter Hrs.
A. English 101, 102, 103	9
B. Mathematics 103	15
C. Social Sciences: History 151, 152 or History 101, 102 Psychology 101	5
D. Humanities: Art 102, English 204 and Electives from English 202, 203, 210, 211, Art 100, Music 105, Drama 101 Philosophy 101	9
E. Natural Sciences: Biology 130, 131, 120 (in place of Biology 101, 102, 103)	14
F. Physical Education: Health Education 101 Physical Education Activity Courses (3 q.h.)	8
SUBTOTAL	60
G. Electives: Library Science 100, Economics 101 Sociology 101, Business 120, Physics 101, 6 quarter hours electives from Humanities and Fine Arts and additional electives to completed 96 quarter hours	36
	96

A student transferring the above courses from Lenoir County Community College to East Carolina University would have met the requirements for English, Health and Physical Education, Mathematics, Humanities and Fine Arts in the General College Requirements.

Upon transferring to East Carolina University, the student would be required to complete the following courses leading to a B.S. degree in Dietetics.

HOME 5, Food; 103, Family Relations; 105, Nutrition; 126, Consumer Education; 134, Textiles; 180, Interior Decorating; 202, Preschool Child Behavior and Development; 205, Advanced Food; 225, Advanced Nutrition; 290, Home Management; 321G, Adult Education; 325, Diet in Disease; 327, Food Purchasing and Cost Control; 328, Quantity Food; 330, Institution Management and Organization; 340G, Institution Equipment; *345, Food Service Practicum; 351, Seminar; 390, Home Management Experiences; 392, Management of Time and Human Resources	69
CHEM 34, Basic General Chemistry; 35, Basic Organic Chemistry 36, Basic Biochemistry	12
PSYC 241 or 242, Personnel and Industrial Psychology I or II; 305, Educational Psychology	8
Electives	5
TOTAL	190

*Supervised field placement

FIGURE XIII. PROPOSED ARTICULATION AGREEMENT BETWEEN WAYNE COMMUNITY COLLEGE AND EAST CAROLINA UNIVERSITY PROGRAM IN DIETETICS

WAYNE COMMUNITY COLLEGE—Associate in Arts Degree	Quarter Hrs.
English—Must include: English 151, 152, 153 (9 q.h.) Literature (5 q.h.) English 150 (1 q.h.), 251	18
Health and Physical Education	6
Humanities and Fine Arts—Art 100 plus electives	10
Mathematics: Math 151	5
Science: Biology 162, 163, 165 Physics 110	17
Social Science: Must include American History or Western Civilization sequence (10 q.h.) Economics 151, Psychology 151	20
Electives: Sociology 151, Business 161 plus electives	20
	96

The student transferring to East Carolina University from Wayne Community College who has completed the above courses would have met the requirements in English, Health and Physical Education, Humanities and Fine Arts, Mathematics and Social Studies for East Carolina University General Education.

Upon transferring to East Carolina University, the student would be required to complete the following courses leading to a B.S. degree in Dietetics.

HOME 5, Food; 103, Family Relations; 105, Nutrition; 126, Consumer Education; 134, Textiles; 180, Interior Decorating; 202, Preschool Child Behavior and Development; 205, Advanced Food; 225, Advanced Nutrition; 290, Home Management; 321G, Adult Education; 325, Diet in Disease; 327, Food Purchasing and Cost Control; 328, Quantity Food; 330, Institution Management and Organization; 340G, Institution Equipment; *345, Food Service Practicum; 351, Seminar; 390, Home Management Experiences; 392, Management of Time and Human Resources	69
CHEM 34, Basic General Chemistry; 35, Basic Organic Chemistry; 36, Basic Biochemistry	12
PSYC 241 or 242, Personnel and Industrial Psychology I or II; 305, Educational Psychology	8
Electives	5
	94
TOTAL	190

*Supervised field experience

[1] / *ENVIRONMENTAL HEALTH*

STATUS OF ENVIRONMENTAL HEALTH TECHNOLOGY

Programs leading to baccalaureate and associate degrees have proliferated since the mid-1960s as a result of increased interest in environmental concerns and as a response to a demand for professionals with appropriate academic backgrounds necessary to work in various environmental control programs. These programs have ranged from those with an engineering emphasis to those with a basic or biological science emphasis. The American Public Health Association once defined environmental health as the interrelationship between the environment and the health and well-being of man. With this definition in mind, the Environmental Health Technology Committee considered only those programs at the two- and four-year level that emphasized man and his health as distinct from programs in ecology, marine science, etc.

Two national accrediting organizations were identified as related to Environmental Health Technology. The National Environmental Health Association extends accreditation to two- or four-year non-engineering programs such as those offered at Pitt Technical Institute, Southwestern Technical Institute, and East Carolina University. The Engineers Council for Professional Development (ECPD) extends accreditation to two- or four-year engineering or engineering technology programs, including those with an environmental or sanitary emphasis, such as those offered at Fayetteville Technical Institute, Sandhills Community College, and University of North Carolina at Charlotte. At the present time there is no particular organization that extends accreditation specifically in the area of occupational safety and health.

TRANSFER OF CREDIT

The committee considered the various points of entry into an environmental health career and the mobility tracks which lead from these programs to a baccalaureate degree. The following career points of entry were identified:

1. The two-year general (science) pre-professional curriculum leads to the Associate of Arts or the Associate of Science degrees and all courses are expected to transfer to a senior institution. In some instances this curriculum may lead to an environmental engineering program in a two-year institution. The transfer options for the student completing this curriculum are as follows:

   a. Environmental Engineering, two-year curriculum, A.A.S. degree
   b. Civil Engineering, two-year curriculum, A.A.S. degree
   c. Environmental Health curriculum, B.S. degree
   d. Engineering curriculum, B.S. degree
   e. Urban Environmental Engineering curriculum, B.S. degree

2. Environmental Engineering Technology (A.A.S. degree). Graduates will be expected to transfer to the following programs of study:

   a. Engineering Technology curriculum, Bachelor of Technology degree
   b. Technology (Education) curriculum, Bachelor of Technology degree
   c. Science Technology curriculum, B.S. degree
   d. Environmental Health curriculum, B.S. degree

3. Graduates of Occupational Safety and Health Technology (A.A.S. degree) curriculums will be expected to transfer to the following programs:

   a. Engineering Technology curriculum (Industrial Engineering Technology), Bachelor of Technology degree
   b. Environmental Health curriculum, B.S. degree
   c. Occupational Safety and Health curriculum, B.S. degree (There is some question at this time as to the necessity for this curriculum.)

4. Graduates of Environmental Sciences (A.A.S. degree) curriculums may transfer to institutions offering the following programs of study:

   a. Bachelor of Science or Bachelor of Arts degree
   b. Bachelor of Science and Technology or a Bachelor in Environmental Science degree
   c. Bachelor of Technology degree (Education)
   d. Bachelor of Science degree in Environmental Health

5. Some graduates of Bachelor of Science and Bachelor of Arts degree programs transfer to two-year institution environmental health and engineering technology programs (A.A.S. degree) after completing a baccalaureate program in arts and/or science at a senior institution.

FIGURE XIV. PROPOSED ARTICULATION AGREEMENT IN ENVIRONMENTAL HEALTH BETWEEN FAYETTEVILLE TECHNICAL INSTITUTE AND EAST CAROLINA UNIVERSITY

The following courses at FTI leading to an AAS degree in Environmental Engineering Technology would transfer for corresponding courses at ECU.

Fayetteville Technical Institute	East Carolina University	
FTI Eng 204 (Oral Communication)	Speech 217 (Public Speaking)	3 q.h.
FTI Eng 102	English I	3 q.h.
FTI Env 104	Biol 95	4 q.h.
FTI Phys 101 & 102	Phys 5	4 q.h.
FTI Math 101 & 102	Math 65	5 q.h.
FTI Psy 206	Psy 150 (Applied Psychology)	3 q.h.
FTI Eco 205	General Education (Social Sciences)	3 q.h.
FTI Env 101 (Environmental Sanitation)	EHLT 210	3 q.h.
FTI Env 112 & 226	EHLT 230	3 q.h.
FTI Env 205	EHLT 222	4 q.h.
FTI Env 216	EHLT 220	4 q.h.
FTI Env 105 (Environmental Chemistry)	Chem 26	4 q.h.
FTI Env 217	EHLT 225	4 q.h.
FTI Env 108 (4) and 109 (4)	EHLT 350 c & e	8 q.h.
*Electives: Env 102 (3), Env. 204 (5), Env 206 (5), Env 218 (4)		17 q.h.
*DFT 101 Technical Drafting (2); DFT 285 Drafting; ELC 205 Applied Electricity (4)		8 q.h.
		80 q.h.

*Tentative at present

Upon transferring to ECU the student would be required to complete the following courses leading to a BS degree in Environmental Health:

EHLT 233 (Occupational Health), EHLT 310 (Planning Environmental Health Programs), EHLT 320 (Principles of Epidemiology), EHLT 330 (Food Sanitation Principles), EHLT 333 (Accident Prevention), EHLT 340 (Solid Waste Management & Vector Control), and EHLT 300 (Recreational Area & Institutional Sanitation)	21 hrs.
Bio (Anatomy & Physiology) & 71	10 hrs.
Eng 2, 3 (Library Science will not be required)	6 hrs.
Chem 34, 35, 36	12 hrs.
Social Sciences	14 hrs.
Math 228 (Statistics)	5 hrs.
Humanities and Fine Arts	12 hrs.
HPRO 300, 305, 334	9 hrs.
Nutrition 105	3 hrs.
Physics 157 (Radiation Techniques)	4 hrs.
Health 12, 125 (First Aid)	6 hrs.
Electives	8 hrs.
	110 hrs.

Supervised placement in an agency is recommended, but not required of all students pursuing a degree in Environmental Health.

FIGURE XV. CURRICULUM ARTICULATION BETWEEN A TECHNICAL SCHOOL OR COMMUNITY COLLEGE AND THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE (BET DEGREE PROGRAM)

Introduction

The two-year technical institute and community college program in Engineering Technology provides an excellent foundation for the third and fourth year Engineering Technology program at the University of North Carolina at Charlotte. The following is an outline of the UNCC requirements for admission and general course requirements.

Requirements for Admission:

A student who has graduated from a technical institute or the technical division of a junior college and who wishes to enter the engineering technology program at UNCC must meet the following requirements:

1. Have an Associate in Applied Science or Associate in Engineering degree in a field appropriate to the option which he plans to enter.
2. Have an overall quality point average of at least 2.20 (based on the 4.0 system) on all courses taken at the technical institute (exceptions to this rule will be considered on the basis of individual merit), and
3. Have satisfactorily completed the prerequisite courses for the option which he plans to enter (see below).

There is considerable variance among the objectives and contents of technical institute programs throughout the Southeast and throughout the United States. Should this result in entrance deficiences, the student can usually remove these deficiences at Central Piedmont Community College in Charlotte prior to admission to UNCC, or during his first year at UNCC.

Background Courses Required for Entering the Bachelor of Engineering Technology Program

The student should have covered the following subject matter in his two-year associate degree program. Quarter-hours indicated are minimums.

Descriptive Title	Quarter Hours
English Composition, Technical Writing, and/or Public Speaking	9
Algebra, Trigonometry, and Analytic Geometry with Calculus	13
*Differential and Integral Calculus	5
General Physics (with Laboratory)	8
*Physics or Chemistry (with Laboratory)	4
*Humanities or Social Sciences	6
*Non-technical subjects	3
Technical Courses in Major Area	48†
TOTAL	96

†The 48 hours of major work should include courses covering all of the subjects in any one of the areas shown below:

Civil
Drafting
*Surveying
Statics
Strength of Materials
Properties of Concrete

Requirements for the Degree of Bachelor of Engineering Technology

Scholastic

A minimum level of scholastic achievement is required of all students in order to continue as a degree candidate.

In order to be eligible for the BET degree, a minimum Quality Point Average (QPA) of 2.00 on all courses attempted at UNCC is required. In addition, a minimum QPA of 2.00 on all courses attempted in the College of Engineering is required.

Course Requirements

Prerequisite courses for entering the Engineering Technology program, normally taken at a Technical Institute or Community College, as listed above.

*These courses can be taken at UNCC

(Continued)

In addition, the following UNCC courses are required for the BET degree:

Title		Semester Hours
Chemistry 101 (or other Natural Science)		4
Computer Science (CSC) 100		3
Economics 201 or 202		3
Humanities or Social Science Electives		9
Free Electives		3
Major Electives		6
Engineering Analysis		9
Specified courses in major area of study		24
Humanities or Social Science Required		3
	Total	64
Transfer credit for AAS degree		64
Total number of semester hours required for BET degree		128

Residence

The residence requirement for the Bachelor of Engineering Technology degree at the University of North Carolina at Charlotte specifies that the last 30 semester hours of credit must be earned at UNCC and that the last 12 semester hours of work in his major field must be earned at this University.

FIGURE XVI. ARTICULATION BETWEEN FAYETTEVILLE TECHNICAL INSTITUTE AND THE CIVIL ENGINEERING TECHNOLOGY PROGRAM OF THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

Environmental Engineering Technology Program at Fayetteville Technical Institute

1st Quarter		2nd Quarter	
ENG 101 Grammar	3	ENG 102 Composition	3
NAT 101 Mathematics	5	MAT 102 Mathematics	5
PHY 101 Matter	4	PHY 102 Work, Energy	4
ENV 101 Sanitation	3	ENV 102 Microbiology	3
ENV 104 Biology	3	DFT 101 Drafting	2
	18		17

3rd Quarter		Summer	
END 103 Report Writing	3	CIV 108 Hydraulics	4
MET 103 Mathematics	5	ELEC 205 Electricity	4
CIV 101 Surveying	4		8
DFT 285 Drafting	2		
	14		

4th Quarter		5th Quarter	
ENG 204 Composition	3	ECO 205 Economics	3
ENV 204 Chemistry	5	ENV 205 Chemistry	5
EDP 117 Computer	4	ENV 217 Waste Treatment	4
ENV 216 Water Treatment	4	MEC 237 Controls	4
	16	ENV 112 Air Sampling	3
			19

6th Quarter	
PHY 206 Psychology	3
ENV 206 Chemistry	5
ENV 218 Waste Treatment	4
ENV 236 Specification	3
ENV 226 Air Analysis	3
	18

Civil Engineering Technology Program at the University of North Carolina at Charlotte

Junior Year			
CET 311 Structures	3	CET 312 Structures	3
CET 321 Soil	3	CET 332 Hydraulics	3
CET 351 Soils Laboratory	1	CET 352 Hydraulics Lab	1
ET 370 Mathematics	3	ET 371 Mathematics	3
CSC 100 Computer	3	ECO 201 (or ECO 202)	
CHE 101 Chemistry	4	Principles of Economics	3
	17	Humanities/Social Science	3
			16

Senior Year			
CET 411 Concete	3	CET 462 Environmental Eng.	3
CET 441 Highways	3	CET 452 Environmental Lab.	1
ET 473 Numerical Anal	3	CET 464 Urban Engineering	3
Humanities/Social Sci.	6	UEE 444 Hydrology	3
	15	Humanities/Social Science	3
		Biology	3
			16

FIGURE XVII. CURRICULUM ARTICULATION BETWEEN A COMMUNITY COLLEGE AND THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE (B.S. ENGINEERING)

All North Carolina technical institutes and community colleges that have college transfer programs can prepare students for a substantial portion of the work necessary for a Bachelor of Science in Engineering degree specializing in Environmental Engineering.

As an example, a student at Davidson Community College may, upon completion of his Associate in Science degree, transfer to the University of North Carolina at Charlotte to earn a Bachelor of Science in Engineering degree specializing in Urban and Environmental Engineering. Upon graduation, he (or she) could prepare to qualify as a registered professional engineer.

Associate in Science Degree (A.S.) Davidson Community College

	Quarter Hours	Semester Hours
a. Communication Arts English, Grammar and Composition	9	6
b. Social Sciences History of Western Civilization	9	6
c. Humanities (from Art, Literature, Religion, Philosophy, or Music)	9-10*	6
d. Mathematics Math, 111. College, Algebra; Math 112, Trigonometry; Math 199, Analytical Geometry and Calculus	15	10
e. Physical Education	3	2
f. Science From Biology, Chemistry, or Physics (sequence courses not accepted in part)	24-28*†	16
g. Electives	27-22	18
Total	96	64

*Pre-Agriculture students should take English 204, 205, or 214-215. Science students may use a foreign language to satisfy the humanities requirement, but they must take a full sequence 101-102-103 or 104-105-106. Science students should consult the language requirements of the senior college to which they plan to transfer.

†Chemistry and physics majors and Pre-Textile Chemistry and Pre-Engineering students should take Chemistry 104-105-106 and Physics 201-202-203. Biology majors and Pre-Medical, Pre-Optometry, Pre-Agricultural, and Pre-Textile Technology students should take Biology 104-105-106 and Chemistry 104-105-106.

Pre-Engineering*

1. General Education Requirements	69-74
2. Engineering Drawing 101-102	6
3. Mathematics 200-201-202	15
4. Electives	6-1
Total	96

*Pre-Chemical Engineering students should take Organic Chemistry 201-202-203, in addition to these courses.

General Education Requirements

These requirements consisting of courses in communication arts, social sciences, humanities, mathematics. and natural sciences are designed to give a broad acquaintance with the many components of human knowledge and to provide an understanding of our cultural and social heritage. As far as possible, these courses are selected to be in accord with the first two years, or general education requirements at baccalaureate degree-granting institutions.

Suggested Programs of Study Leading to the Associate in Ars and Associate in Science Degrees

(Continued)

Along with the general education requirements, additional courses are suggested to give depth in the student's area of major interest. The following curricular outlines serve as guides for students planning to transfer to a four-year college or university. These are sample curricular patterns. They are not meant to be prescriptive for any particular student nor are they minimum requirements. However, they are selected to be in accord with the first two years' requirements which are usually specified by baccalaureate degree-granting institutions and should be followed as closely as possible.

A student expecting to transfer to a senior college is advised to examine carefully the current catalog of the particular college he expects to enter and to follow as closely as possible its particular recommendations for programs of study. Counselors and faculty members are prepared to advise students, but the final responsibility for course selection is left to the student.

Department of Urban and Environmental Engineering at the University of North Carolina at Charlotte

One of the major thrusts of the University of North Carolina at Charlotte is the establishment of ways in which urban problems can be identified and solutions found. The College of Engineering has in turn initiated a program in which urban and environmental aspects of engineering are emphasized. In the curriculum, urban and environmental issues are the bases used for example problems, for student exercises, and for independent study projects.

Thus, the department will emphasize urban problem areas associated with structural engineering, transportation engineering, and environmental engineering. More emphasis will be given to water pollution problems while continuing the study of water resource systems and the building of water delivery systems for an increasing population.

Partial List of Course Descriptions — Environmental Engineering

UEE 441. ENVIRONMENTAL ENGINEERING I. (3) Prerequisite: Consent of department. Principles and methods of water supply, treatment, and distribution; waste water collection, treatment, and disposal; sanitation.

UEE 442. ENVIRONMENTAL ENGINEERING II. (3) Prerequisite: UEE 441. A continuation of UEE 441. Problems of air and water pollution and solid waste disposal.

UEE 444. HYDROLOGY. (3) Prerequisite: Consent of department. Precipitation, stream gaging, evaporation and transpiration, ground water, hydrographic analysis; stream flow routing, frequency, and duration.

UEE 453. UEE LABORATORY III. (1) Prerequisite: UEE 352. Prerequisites or corequisites: UEE 441 and UEE 461. Continuation of UEE 352. Laboratory problems in environmental engineering and water quality analysis. Analysis and desgin of transportation systems. Three laboratory hours per week.

Articulation of Davidson Community College into the Urban and Environmental Program of the University of North Carolina at Charlotte

Freshman Year

	Hrs.			Hrs.	
English 101	3	Davidson	English 102	3	Davidson
Chemistry 101	4	"	Chemistry 102	4	"
Math 104A	1	"	Math 104B	2	"
Math 143	3	"	Math 144	3	"
Drafting	2	"	Engineering 102*	2	UNCC
Humanities/S.S.	3	"	(Programming)		
	16			14	

Sophomore Year

EAD 211	3	UNCC	EAD 212	3	UNCC
ESM 241	3	"	ESM 292	3	"
Math 244	3	Davidson	Math 271*	3	"
ECO 201	3	UNCC	UEE 321	3	"
Engineering 251	1	"	ENG 252	1	"
Humanities/S.S.	3	Davidson	Humanities/S.C.	3	Davidson
	16			16	

(Continued)

Junior Year

ESM 341	3	UNCC	ESM 342	3	UNCC
UEE 322	3	"	UEE 352	1	"
UEE 441	3	"	Physics 222	3	Davidson
UEE 351	1	"	Minor	3	UNCC
UEE 461	3	"	Minor	3	UNCC
Humanities/S.S.	3	Davidson	Humanities/S.S.	3	UNCC
	16			16	

Senior Year

ESM 311	3	UNCC	UEE 468	3	UNCC
UEE 421	3	"	Math	3	"
UEE 453	1	"	UEE 454	1	"
Minor	3	"	Minor	3	"
Physics*	3	"	Minor	3	"
Humanities/S.S.	3	"	Science Elective	3	Davidson
	16			16	

*Possible courses that could be taken at Davidson — with course offerings and counseling, it would be possible to complete approximately one-half the dregree requirements or 64 semester hours.

Davidson	46 Semester Hours
UNCC	90 Semester Hours

FIGURE XVIII. CURRICULUM ARTICULATION BETWEEN A COMMUNITY COLLEGE AND/OR TECHNICAL INSTITUTE AND APPALACHIAN STATE UNIVERSITY (Bachelor of Technology Degree Program in the Areas of Environmental Engineering, Public Health, Work with Industry or TEACHING)

Requirements for Admission:

A limited number of selected graduates of technical institutes and community colleges with the Associate of Applied Science degree in (a) Business or (b) Engineering Technology, who can demonstrate competency in the area of their specialization, are admitted to this program each year.

Bachelor of Technology Degree Requirements:

1. Completion of at least 90 quarter hours at Appalachian with a grade-point average of at least 2.00.

2. Completion of the following general education requirements:

Two courses in literature	6 q.h.
One course from Art 217, English 217, Music 217, or Speech 217	3 q.h.
One course in philosophy or religion	3 q.h.
History 101, 102, or History 103, 104	3 q.h.
Psychology 201	3 q.h.
Total	23 q.h.

3. Demonstration of proficiency in reading, speech, and written English.

4. A minimum of 18 additional hours in the area of specialization.

5. Completion of professional education requirements as follows:

Secondary Education 304, Administration, Supervision and Higher Education 306, 495, 497	12 q.h.
Psychology 301, 302, 303	9 q.h.
Administration, Supervision and Higher Education 496 (Internship)	15 q.h.
Educational Media 475	3 q.h.
Total	39 q.h.

6. Completion of 13 quarter hours of electives. If the student has not had a year of a natural science at the two-year institution, he must take a year (9 q.h.) of a natural science at Appalachian.

[1] / *MEDICAL LABORATORY TECHNOLOGY*

STATUS OF MEDICAL LABORATORY TECHNOLOGY

As with all branches of science today, clinical laboratories have developed into a multi-faceted division of medical disciplines. During the past ten years it has been recognized that various levels of training and experience are needed to perform this variety of functions. Because of the increasing size of laboratories and the multiplicity of tests performed, medical directors have delegated more responsibility to certain technical personnel within their laboratories. In many small- and medium-sized hospital laboratories, the work force generally consists of certified laboratory assistants (CLA) and medical laboratory technicians (MLT) or their equivalents working under the supervision of a medical technologist. In addition, in larger hospitals there is the need for personnel with advanced specialized training in clinical areas such as clinical chemistry, immunohematology and clinical microbiology. These roles are often filled by medical technologists or others who have taken advanced training or degrees. In general, in larger laboratories the main work force is currently the CLA, the MLT, or their equivalent, and the medical technologist (MT). Because of increased hospital costs and the advent of automation in clinical laboratories, it appears that in the near future there will be a greater need for personnel at the MLT level. Specialty areas within the clinical laboratory, such as histology and cytotechnology are not dealt with in this study because programs in these areas are well developed outside the medical technology framework.

Avenues to a professional medical technologist curriculum include the following:

A. Completion of two years of general college courses and prerequisites for medical technology prior to entering the professional curriculum at the junior level in a senior college or university. This particular curriculum pattern is referred to frequently as the 2 + 2 design.

B. Completion of three years of general college courses and prerequisites in the arts and sciences for admission to a clinical year of education during the senior year. This is often referred to as the 3 + 1 curriculum pattern.

C. Completion of a baccalaureate degree, including prerequisites for admission to a post-baccalaureate clinical year of education. This is referred to as the 4 + 1 curriculum design.

D. Completion of a CLA and/or MLT curriculum in a two-year institution of higher education at which time transfer is made to a senior college or university medical technology curriculum.

TRANSFER OF CREDIT

Transfer of credit earned in programs at A, B, and C above is an acceptable practice with little or no loss of credit. Transfer of credit earned in a community college CLA or an MLT curriculum is more difficult because these are atypical routes to the professional medical technology curriculum and the relationship between these curricula and the medical technology curricula have not been delineated clearly by the professional association.

Special emphasis has been given in this report to a transfer model from the MLT curriculum to a medical technologist curriculum in accordance with curriculum pattern (a) described above, and guidelines have been devised to help facilitate upward career mobility of students who have completed a medical laboratory technician curriculum. The 2 + 2 curriculum pattern is considered a more appropriate model for articulation between medical laboratory technician and medical technology programs.

It may be necessary for the MLT student to complete additional courses, probably in math and English, in order to transfer to junior level standing in a medical technology curriculum in a senior college or university. The amount of clinical education necessary beyond the basic MLT two year curriculum will depend on the length and depth of the individual's previous experience in a clinical laboratory.

Students interested in transferring to a college or university offering a medical technology curriculum should contact the senior university's department of medical technology as early as possible. Prior to admission, the student must make application to the university and provide official transcripts of all college work completed. A personal interview with faculty in the department of medical technology is recommended.

1. General College Courses in Two-Year Institutions

General college courses completed in the medical laboratory technician curriculum and recommended for transfer to a senior institution would generally be the following:

a. English composition ..... 6 qtr. hrs.
The student completing college transfer English in a community college should be able to transfer one year of the English requirement to the senior institution.

b. Biological and physical sciences ..... 27 qtr. hrs.
The student completing courses in chemistry, biology, including microbiology, human physiology, and anatomy, should be able to transfer this work to the senior institution.

c. Social sciences ..... 10 qtr. hrs.
Social science courses in sociology and psychology completed in the two year institutions should be transferable to the senior institution.

d. Humanities and Fine Arts ..... 5 qtr hrs.
Humanities and Fine Arts should be transferable to the senior institution.

e. Additional electives.
Additional general education courses from areas listed above and completed in a community college should be transferable to a senior institution.

2. Professional Course Work in Two-Year Institutions

a. Credit for professional (medical laboratory) courses may be gained by examination. Such credits are usually determined by the department of medical technology after the student has enrolled in the senior institution. Examinations used for gaining credit by examination may include a combination of written and practical examinations developed by the department as well as CLEP equivalency examinations whenever practical.

b. Evaluation of professional work experience will be made on an individual basis depending on the amount and depth of experience of the individual. Students may be able to reduce the amount of clinical affiliation required which is normally 24 weeks.

3. General College Courses in Senior Institutions

Additional general college courses will usually be required by the senior institution in the following areas:

a. Chemistry ..... 14 qtr. hrs.
Additional requirements in organic and quantitative analysis chemistry and usually required in the professional medical technology curriculum.

b. Biology ..... 20 qtr. hrs.
Additional biology, perhaps general biology, cell physiology, and biometry are usually required in the professional curriculum.

c. Physics ..... 4 qtr. hrs.

d. Psychology ..... 2-4 qtr. hrs.

e. Other requirements ..... 9 qtr. hrs.
If the medical technology curriculum is included in a department, school, or college of allied health sciences, a number of health professions courses may also be required (9 qtr. hrs.) for the baccalaureate degree.

4. Professional Course Work in Senior Institutions

Professional courses in the medical technology curriculum usually include the following:

a.	Clinical chemistry	12 qtr. hrs.
b.	Clinical microbiology	16 qtr. hrs.
c.	Clinical education	24 qtr. hrs.
d.	Immunohematology and serology	6 qtr. hrs.
e.	Clinical hematology	8 qtr. hrs.
f.	Clinical microscopy	3 qtr. hrs.
g.	Seminar	1-3 qtr. hrs.

Many of the professional medical technology courses may be taken for credit by examination. Total time required by the student will depend on length and depth of his previous clinical experience.

An interinstitutional transfer model between Sandhills Community College and East Carolina University for a student transferring from a medical laboratory technician program to a medical technology program to a medical technology program curriculum at the senior institution follows.

FIGURE IX. GUIDELINES FOR TRANSFER FROM THE MEDICAL LABORATORY TECHNICIAN (MLT) PROGRAM AT SANDHILLS COMMUNITY COLLEGE TO THE MEDICAL TECHNOLOGY (MT) PROGRAM AT EAST CAROLINA UNIVERSITY

The following guidelines have been determined to help facilitate the upward career mobility of students who have completed the Medical Laboratory Technology curriculum at Sandhills Community College. In addition it can serve as a model to facilitate the same opportunities for students from other similar programs.

By taking a minimum of two additional courses (math and English) at Sandhills a full-time student could complete all additional **academic course work** in 2 years including a summer session. The amount of clinical education necessary beyond this 2 years will depend on the length and depth of the individual's previous experience in a clinical laboratory. Students interested in transferring to the Medical Technology curriculum should contact the Department of Medical Technology as early as possible. Prior to admission the student must have made application both to the University and the School of Allied Health and Social Professions, supplied both University and Department of Medical Technology with an official transcript of all college work and had a personal interview with the Department of Medical Technology.

1. Possible general college transfer credits from courses required in the Medical Laboratory Technology curriculum.

a. English	
English 110, 111	6 q.h.
b. Science	
Chem. 110, 111, 112	12 q.h.
Biology 230 — Microbiology	5 q.h.
Biology 210, 211 (Human Physiology & Anat. 1 and 11)	10 q.h.
c. Social Science	
Psych. 201 General Psychology	5 q.h.
Social Science elect.	5 q.h.
d. Humanities and Fine Arts	
Phil. 201	5 q.h.
	48 q.h.

2. Suggested additionai courses which could be taken at Sandhills Community College which would transfer

a. English	
English 112	3 q.h.
b. Social Science	
Suggested soc. science elective be Intro to So(Soc 201)(5)	
*Hist, Poli Sci, Econ, Psych Soc.,	
Need electives in three areas	*10
c. Math	
Math 110 College Algebra	5 q.h.
d. Humanities and Fine Arts	
*Electives from Literature, Philosophy,	
Art, Drama, Speech, Music	*10
e. General Biology 110, 111	*8
	36 q.h.
Total possible Transfer Credits	84 q.h.

3. Comments on transfer credits

   a. All official evaluations of transfer credit will be made by Admissions Office East Carolina University

   b. Students must have a minimum of 2.0 overall quality point average and a letter of recommendation from the Director of the Medical Laboratory Technology Program. It is recommended that they have no grade lower than a C in their courses.

   c. Student would be able to complete some of Humanities and Social Science requirement at East Carolina University if desired. These indicated by * in 2 and 6.

   d. Of the courses listed in 2, it is strongly recommended that Math 110 be completed before beginning course work at East Carolina University.

(Continued)

4. Possible transfer credits for professional courses work and experience
   a. Credit for professional (Medical Laboratory) courses may be gained by examination. Such credits will be determined by the Department of Medical Technology after enrollment.
      1. The examinations to be used will be a combination of written and practical.
      2. The examinations will be given by the Department of Medical Technology.
      3. The Department intends to utilize CLEP equivalency examinations whenever appropriate.
   b. Evaluation of professional work experience will be made on an individual basis depending on amount and depth of experience. Individual may be able to reduce amount of additional clinical affiliation required (normally 24 weeks).
5. Additional courses to be taken at East Carolina (assuming student has all credits listed in I and II).
   a. General College

1. Chem 144, 145 Organic Chemistry	9	q.h.
Chem 113 Quant. Analysis	5	
2. Biology 70, 71, 160 General Biology	12	
Biol 215 Cell Physiology	5	
Biol 385G Biometry	3	
3. Physics 302 Medical Physics	4	
4. Psych 218 Psychology of Disease & Disability	2	
5. Phys Educ & Swimming Proficiency		
6. Health Professions Core Courses		
HPRO 250 a,b,c, Prespectives in Health Care	3	
HPRO 305 Administration and Supervision	3	
HPRO 334 Research Design	3	
	53	q.h.

   b. Professional courses

1. MEDT 302a,b Clinical Chemistry	12	
MEDT 304a,b Clinical Education	24	
MEDT 305a.b Clinical Microbiology	16	
MEDT 306 Immunohematology & Serology	6	
MEDT 307 Seminar	1	
MEDT 308 Clinical Hematology	8	
MEDT 309 Clinical Microscopy	3	
	70	q.h.

      2. Any of these courses except MEDT 307 may be taken for credit by examination. Total time required by student will depend on length and depth of his previous clinical experience.
6. Sample Course Sequence

Junior Year

Fall		Winter		Spring		SSI	
Chem 144	4	Chem 145	5	Biol 385G	3	Biol 215	5
Biol 70	4	Biol 71	4	Biol 160	3	Soc. Sci &	
HPRO 250a	1	HPRO 250b	1	Chem 113	5	Humanities	2
Psych 218	2	HLTH	4	HPRO 250C	1		
Physic 302	4		—		—		
	—		14		12		
	15	Soc. Sci. or Humanities 3*		Soc. Sci. or Humanities 6*			
Soc. Sci. or Humanities electives 3*							

Senior Year

Fall		Winter		Spring			
MEDT 305a	8	MEDT 305b	8	MEDT 308	8	MEDT 304 a,b,	
MEDT 306	6	MEDT 302a	6	MEDT 309	3	(as required)	24
HPRO 334	3	MEDT 307	1	MEDT 302b	6		
	—	HPRO 305	3		—		
	17		—		17		
			18	Soc. Sci. or Humanities 2			
Soc. Sci. or Humanities electives 2							

[1] / *MEDICAL RECORD ADMINISTRATION*

STATUS OF MEDICAL RECORD ADMINISTRATION

While medical records have been kept for centuries, the value of accurate medical records was first publicly recognized by the American Hospital Association in 1902. It was further recognized in 1905 by the medical profession through a paper presented at the annual meeting of the American Medical Association and later that year published in their journal. In 1928 medical record workers in the United States and Canada were invited to a meeting of the American College of Surgeons because the entire meeting was to be devoted to medical records and medical record keeping. The Association of Record Librarians of North America was organized at this time with 58 charter members.

The organization established an educational program in 1935 and approved four schools, one of which was a degree granting school. The Association approved and inspected its own schools until 1942 at which time the American Medical Association Council on Medical Education and Hospitals was authorized to perform this function.

In 1935 the registration examination was begun under the supervision of a board of registration. Until 1971, successful writing of the examination resulted in the designation of registered record librarian. The designation was changed by the 1971 House of Delegates to registered record administrator to more accurately describe the scope of responsibilities assumed by the medical record practitioner. As of January 1965, applicants for registration were required to be graduates of an approved school of medical record administration. Some schools were certificate programs requiring 2 years of liberal arts or a nursing certificate prior to entrance to the school. It was not until September, 1970 that all approved programs were required to be at the baccalaureate or post-baccalaureate level. The medical record administrator is responsible for providing a system for acquiring, analyzing, storing and retrieving information so that it can be readily available when needed. This individual must be able to organize the efforts of a number of technical employees so as to achieve the objectives of the medical record department and to coordinate departmental objectives with those of the health facility in which employed. In addition, the administrator must work closely with the medical-dental staff and administration of the health care facility to assure that all standards of the various accrediting agencies are met.

In 1953 the first school for medical record technicians was approved. This new level of profession was recognized because of the need for trained ancillary personnel to assist the medical record librarian. The medical record technician serves as a specially trained assistant to the registered record administrator and carries out the many technical activities within a medical record department—typing clinical records, preparing statistical reports on patients treated, supervising clerical personnel, reviewing medical records for completeness, and working with doctors, nurses, and other health professionals on medical records and medical research projects.

From 1953 through 1969 a program designating "certified record librarians" was in effect. Its purpose was to recognize those registered record librarians who had made outstanding contributions to their profession.

Registered record administrators (RRA's) may have had the following backgrounds prior to writing the qualifying examinaiton:

A. Experience only

B. Graduate of a non-approval school plus required years of experience

C. Accredited record technician with 60 hours of college credit plus required years of experience

D. 60 semester hours plus required years of experience

E. AA degree plus one year certificate program

F. RN plus one year's certificate program

G. B.A. or B.S. degree plus one year's certificate program

H. Baccalaureate degree program

Accredited record technicians (ART) may have had the following backgrounds prior to writing the qualifying examination:

A. Experience only
B. Graduate of an approved one year hospital-based program
C. Graduate of an approved AA program
D. Completion of the American Medical Record Association (AMRA) correspondence course for medical record personnel.

Medical Secretaries may have had the following backgrounds:

A. Experience only
B. Graduate of course awarding no college credit
C. Graduate of AA or AAS degree programs

It appears that the route by which feature students can be expected to enter medical record programs will be the following:

A. Students in a pre-professional curriculum for two years transferring into a degree program for medical record administrators
B. Accredited record technician entering a medical record administration program
C. Medical secretary entering a medical record technician or administration program
D. Students with any bachelor's degree entering a medical record administration program.

It is recognized that the variety of educational and experiencial backgrounds will necessitate individual evaluation and placement according to the policies and regulations of the receiving institutions.

The American Medical Record Association believes that an accredited record technician should have the opportunity to complete academic records requirements for registration. The medical record technician and the medical record administration educational programs should be coordinated to allow ease of progression, avoid subject matter duplication, and minimize loss of academic credit.*

*American Medical Record Association statement on progression.

SPECIFIC GUIDELINES FOR TRANSFER OF MEDICAL RECORD TECHNICIAN STUDENTS TO A MEDICAL RECORD ADMINISTRATION BACCALAUREATE PROGRAM

Transfer of Credit

1. *Course Work in Two-Year Institutions*

Credit which could transfer from the medical record technician program at Central Piedmont Community College to the medical record administration program at East Carolina University or Western Carolina University:

a. General Education

1. English
   English 1304, 1305, 1306 ..... 9 q.h.
2. Science
   Biology 1504, 1505 ..... 10 q.h.
3. Social and Behavioral Sciences
   Psychology 2504 ..... 5 q.h.
   Sociology 2514 ..... 5 q.h.
4. A maximum of six quarter hours of typewriting can transfer as general electives ..... 5 q.h.

b. Additional courses which could be taken at Central Piedmont Community College:

Math 1514 — College Algebra ..... 5 q.h.
2514 — Statistics ..... 5 q.h.

c. It would also be possible for students regularly or formerly enrolled in the University to obtain credit by examination for the above listed general education courses.

d. Professional Course Work

Since the medical record technician program at Central Piedmont Community College is not operational and actual course syllabi are not available for comparison, it is not possible to properly evaluate course content at this time and to establish specific guidelines. However, credit for professional courses or specific content areas completed in the medical record technician program may be gained by examination or by policies established by the receiving university. This credit will be determined by the Department of Medical Record Science in each of the transfer institutions after enrollment.

Students are encouraged to take proficiency examinations in the following areas:

Medical Terminology
Medical Record Science Units on:
- Standard Nomenclature of Disease and Operations
- International Classification of Diseases Adapted
- Indexing and Registers
- Statistics
- History of Hospitals
- The Medical Record

Evaluation of professional work experience will be made on an individual basis to determine the hours of clinical affiliation required.

2. *Course work in a Senior Institution*

EAST CAROLINA UNIVERSITY

a. General Education and Required Cognates

1. Biology 70, 71, 90 (General) ..... 12 q.h.

2. Social and Behavioral Sciences (History, Psychology, Sociology, Political Science, Economics, Anthropology, Geography) ..... 10 q.h.

3. Humanities and Fine Arts ..... 15 q.h.
(Literature, Philosophy, Art, Music, Drama, Speech)

4. Health 12 (Personal and Community Hygiene) ..... 3 q.h.
Physical Education 12 ..... 1 q.h.

5. Required Cognates
Accounting 122 ..... 3 q.h.
Psychology 218 ..... 2 q.h.
Business Administration 244, 245 ..... 6 q.h.

b. Health Professions Core Courses
1. HPRO 300 Community Health and Organization ..... 3 q.h.

2. HPRO 315 Administration, Supervision and Consultation for the Health Prof. ..... 3 q.h.
3. HPRO 231, 316 Medical Sciences I and II ..... 10 q.h.
4. HPRO 334 Research Design ..... 3 q.h.

c. Professional Courses
1. Additional professional courses required will be determined at later date when the medical record technician program is operational.

WESTERN CAROLINA UNIVERSITY

a. General Education and Required Cognates
1. Natural Sciences ..... 15 q.h.
Biology 1501 Principles of Cellular Biology
Biology 1502 Principles of Environmental Biology
Five hours of electives outside Biology

2. Mathematics ..... 4 q.h.
Math 2481 Introductory Finite Mathematics and Probability

3. Humanities ..... 21 q.h.
Speech 2310
English 2301, 2302 World Literature
Electives

4. Social Sciences ..... 10 q.h.
Hist. 1501, 1502 World Civilization or Pol. Sci 1503

5. Health and Physical Education ..... 6 q.h.
Health 1306 Personal and Community Hygiene (Recommended)
Electives

6. Required Cognates
Accounting 2401 Principles of Accounting I ..... 4 q.h.
Management 3405 Introduction to Management ..... 4 q.h.
Data Processing 3401 Automated Data Processing ..... 4 q.h.
Economics 2443 Principles of Economics ..... 4 q.h.
Psychology 3306 Applied Psychology ..... 3 q.h.

b. Health Science Core Courses

1. 1301 Introduction to Health Careers ..... 3 q.h.
2. 2401 Etiology of Infectious Diseases ..... 4 q.h.
3. 3301 Medical Terminology ..... 3 q.h.
4. 3302 Medical-Legal Ethics ..... 3 q.h.
5. 4202 Seminar in Health Sciences ..... 2 q.h.

c. Professional Courses

1. Additional professional courses required will be determined at a later date when the medical record technician program is operational.

IV. American Medical Record Association Correspondence Course

A. No general education course credit can be given for American Medical Record Association Correspondence Cource

B. Credit for professional courses or specific content areas may be gained by examination or by policies established by the receiving university. This credit will be determined by the Department of Medical Record Science in each of the receiving institutions after enrollment.

C. Evaluation of professional work experience will be made on an individual basis to determine the hours of clinical affiliation required.

[1] / *PHYSICAL THERAPY ASSISTANT*

STATUS OF PHYSICAL THERAPY

The physical therapy assistant is prepared in two-year, technically-oriented community college program leading to some type of associate degree and is expected to function and perform specific technical tasks under the direction and supervision of a physical therapist. The curriculum in which a physical therapy assistant is prepared is designed to equip the graduate with specific knowledges and skills and is not considered to be a professional curriculum for admission to a professional physical therapist curriculum leading to a baccalaureate degree. In general, the physical therapy assistant curriculum is deficient in both general college and pre-physical therapy requirements which must be completed before the student can be admitted to junior level standing in a baccalaureate program. Without additional study beyond the associate degree for the physical therapy assistant, it is not presently possible for a graduate of this program to transfer to a baccalaureate program in physical therapy with junior level standing.

TRANSFER OF CREDIT

Graduates of a physical therapy assistant curriculum will be given some credit in a baccalaureate degree program for physical therapists. Credit which can be expected to transfer is described as follows:

1. General Education and Pre-Physical Therapy Requirements

a. English Composition

The student completing college transfer level English in the community college may transfer one year of the English requirement to the baccalaureate program.

b. Biology

Two quarters of biology (generally anatomy and physiology) may be transferred but additional biology requirements of the transfer institution specified for the physical therapist curriculum will have to be met.

c. Social Sciences

Social science courses in psychology and sociology will transfer, but one additional course is required from a third social science area to satisfy transfer institutional degree requirements.

d. Humanities

Humanities courses are transferable but the balance of course work to complete the transfer institutional humanities requirement must be completed to satisfy requirements for the baccalaureate degree.

2. Physical Therapy Major Course Requirements

a. There are no specific physical therapy assistant courses which are acceptable for transfer for a specified course in the baccalaureate curriculum.

b. Content areas in the physical therapy assistant program which are also included in the physical therapist curriculum but which are not identified as specific courses within each curriculum are as follows:

1. Historical development and trends in physical therapy
2. Fundamentals of patient care to include handling, vital signs, and asepsis
3. Physical agents (i.e. massage, hydro, etc.)
4. Some aspects of therapeutic exercises

3. Recommendations

a. Baccalaureate physical therapy faculty should review and evaluate the general college and pre-physical therapy transfer credit presented by the physical therapy assistant and by persons prepared at the community college level in order to provide an optimum interpretation of credit transfer in harmony with educational requirements at the baccalaureate institution.

b. Baccalaureate physical therapy faculty should review the total physical therapy assistant education program in order to grant credit for a specific baccalaureate course when requirements have been met by a course, or a combination of courses, presented by the physical therapy assistant graduate.

c. Baccalaureate physical therapy faculty should evaluate technical or physical therapy courses for equivalency credit in the baccalaureate physical therapy curriculum.

d. Baccalaureate physical therapy faculty should offer opportunity for credit by examination in course areas not clearly identified for equivalency credit. Such examination should not be punitive to the student.

e. The faculty of the physical therapy assistant program should offer opportunity for credit by examination in course areas related to knowledge and skills to be obtained in the physical therapy assistant program which have been acquired through nontraditional educational methods.

[2] / *DENTAL AUXILIARIES*

STATUS OF DENTAL AUXILIARIES

With the changing patterns of educational preparation for careers in the allied health sciences and with the philosophy that appropriate learning experiences can be gained outside the classroom and traditional education approaches, mechanisms must be established that will provide for recognition for such experiences. Further, with the increasing need for well-qualified and properly trained dental auxiliary personnel in the public health/education sectors and the changing emphasis on preventive dentistry, and with the increasing needs for well-trained persons in teaching and educational administration, it has become essential that new and additional avenues of career mobility and advancement be made available to those dental auxiliary students who appear to be especially motivated to seek additional advanced education. Accordingly, the following guidelines relating to the transfer of dental auxiliary students who may have obtained their profession/technical education in a two-year community college or technical institute have been established.

Dental hygienists, dental assistants, and dental technicians who have completed their professional education and are certified or eligible for certification should be permitted to pursue an educational program that will provide education in greater depth than that which is available in present two-year programs.

TRANSFER OF CREDIT

Using the teacher education tracks as an example, criteria recommended for transfer of credit from previously completed education and training are as follows:

Dental Hygiene

A maximum of 64 semester units of credit should be granted to a dental hygiene student who has successfully completed a program of education that is accredited by the Council on Dental Education of the American Dental Association, and who has passed successfully the national examinations given by the National Board of Dental Examiners.

Of the 64 semester units, up to 43 semester units of credit should be given for the professional (dental hygiene) courses and an additional 21 semester units may be granted for acceptable courses in general education and liberal arts.

Dental Assisting and Dental Laboratory Technology

1. Any student who has completed an educational program in dental assisting or in dental laboratory technology that is (a) accredited by the Council on Dental Education of the American Dental Association, (b) who has been certified by the Certifying Board of the American Dental Assistants Association or the National Board of Certification for Dental Laboratory Technicians, and (c) who has an associate degree from a recognized educational institution, may be granted up to 25 semester units of credit for the professional/technical courses and up to 18 semester units of credit in the basic sciences through either prior validation or through a challenge examination process. In addition, up to 21 semester units of credit may be granted for acceptable liberal arts and general education courses.
2. Any person who has completed an accredited educational program in either dental assisting or dental laboratory technology and/or has qualified for certification eligibility by virtue of on-the-job training and experience and is, in fact, currently certified by the appropriate agency listed in 1. above may be granted up to 43 semester units of credit for professional/technical courses through a series of appropriate challenge examinations.

Suggested Baccalaureate Degree Program in Teacher Education

1. *General College Course*

   Transfer students must complete additional general college requirements of the transfer institution, selecting upper-division courses in lieu of lower-division courses when available. General college courses may include English, mathematics, social sciences, humanities, natural sciences, physical education and electives.

2. *Basic Health Sciences and Dental Sciences*

Basic health sciences recommended for the transfer student include gross anatomy, general microbiology and physiology. Related dental sciences recommended for the transfer student include the following: histology, pathology, nutrition, pharmacology, dental anatomy, and community dental health.

3. *Teacher Preparation Specialty*

Advanced education recommended for the dental auxiliary student preparing for a teaching career would include courses such as the following:

a. Education Courses
   - Foundations of American Education
   - Educational Psychology
   - Psychology of Adult Learning
   - Audio-visual Materials and Instruction

b. Dental Education Courses
   - Introduction to Dental Auxiliary Education
   - Dental Education Materials
   - Clinical-Laboratory Teaching Practices
   - Electives in Dental Auxiliary Techniques

c. Electives
   - Scientific Writing and Public Speaking

FIGURE XX. TYPICAL TEACHER PREPARATION PROGRAM OF STUDY FOR DENTAL ASSISTANTS AT THE SCHOOL OF DENTISTRY, UNIVERSITY OF NORTH CAROLINA

Students in this category have various educational backgrounds, such as the associate degree graduate, the diploma or certificate graduate of a ten or twelve month program in dental assisting, and those who secured certification via other approved methods (the 104-hour course, a correspondence study program, and challenge examinations). A program of study for those lacking transfer credit is as follows:

First Year

Fall Semester		Spring Semester	
English 1	3	English 2	3
Math 1	3	Math 2	3
Sociology, Intro.	3	Natural Science Elective	4
Humanities Elective	3	Humanities Elective	3
College Elective	3	Social Science Elective	3
Physical Education	1	Physical Education	1
	16		17

Second Year

Fall Semester		Spring Semester	
Biochemistry	4	Biochemistry	4
Psychology, Intro.	3	Dental Histology	2
Social Science Elective	3	Public Speaking	3
Gross Anatomy	3	College Electives	
General Physiology	2	(3 courses)	9
Dental Anatomy	3		18
	18		

Third Year

Fall Semester		Spring Semester	
Microbiology	4	Advanced Dental Materials	3
Oral Pathology	2	Dental Pharmocology	1
Education Foundations	3	Nutrition	2
Educational Psychology	3	Scientific Writing	3
Audio-visual Techniques & Methods	3	Community Dental Health	3
College Elective	3	College Elective	3
	18		15

Fourth Year

Fall Semester		Spring Semester	
Advanced Dental Radiology	3	Internship—Seminar	
Clinic-Lab Teaching Practicum	4	(Practice Teaching)	9
Intro. to Dental Auxiliary Education	4		
Elective (Upper division)	3		
	14		9

Total Semester Hour Credits 125

Students may elect to complete some course requirements during the summer session. With advance planning and utilization of the summer course offerings, a student may complete the degree requirements in less than four years.

NOTE: Dental Laboratory Technicians:

These students will take a program of study that is similar to the one developed for dental assistants. A special program of study is designed for each technician based on his previous experience, education, and goals. A list of approved elective courses is provided in lieu of those courses required for assistants and hygienists that are outside the specialty of dental laboratory technology.

FIGURE XXI. TYPICAL TEACHER PREPARATION OF STUDY FOR DENTAL HYGIENISTS SCHOOL OF DENTISTRY, UNIVERSITY OF NORTH CAROLINA

Hygienists completing a two-year associate degree, certificate or diploma program are eligible for admission with junior standing provided satisfactory scores are presented from the National Dental Hygiene Board Examinations. Some academic courses in English, Social Sciences, Natural Sciencer and Humanities are usually included in most dental hygiene curriculums. These courses are usually acceptable for transfer to the University. A typical program of study for hygienists transferring 64 credits is as follows:

Third Year

Fall Semester		Spring Semester	
Math 1	3	Math 2	3
Biochemistry	4	Biochemistry.	4
Education Foundations	3	Advanced Dental Materials	3
Educational Psychology	3	Psychology of Adult Learning	3
Audio-visual Techniques and Methods	3	Natural Science Elective with Lab	4
Elective	3	Physical Education	1
Physical Education	1		18
	20		

Fourth Year

Fall Semester		Spring Semester	
Advanced Dental Radiology	3	Internship and Seminar (Practice Teaching)	9
Clinic-Lab Teaching Practicum	4		9
Dental Auxiliary Education, Intro	4		
Scientific Writing	3		
Elective (Upper-division)	3		
	17		
		Total Semester Hour Credits	64

Students may elect to complete some course requirements during the summer sessions. With advance planning and utilzation of the summer course offerings, a student may complete the degree requirements in less than two years.

STATUS OF RADIOLOGIC TECHNOLOGY

Radiologic technologists receive basic professional education during two years of post-secondary education in programs accredited by the American Medical Association's Council on Medical Education. Successful completion of the two-year program enables the student to write the national certification examination of the American Registry of Radiologic Technologists.

Traditionally, Technologists received their professional education in hospital-based programs not granting educational degrees, and the majority of technologists today acquire basic knowledge and skills necessary for certification by this route. Such an arrangement has in general curtailed further career advancement in institutions of higher education.

Recently, radiologic technology education has been redirected to educational institutions and, primarily, to two-year community colleges. The number of two-year educational programs in radiologic technology granting associate in applied science degrees is increasing. This indicates a strong trend toward academically based programs with subsequent strengthening of career advancement opportunity.

Growth and basic changes in educational programs with radiologic technology, in addition to corresponding growth and sophistication of clinical radiological services within the field, have created a need for a career ladder which enables technologists to acquire preparation beyond basic levels and to assume leadership roles in education and administration.

In response to this need, senior colleges and universities have offered technologists advanced career opportunities in education and administration courses leading to a baccalaureate degree. Basic professional radiologic technology education may also be acquired in a four-year curriculum leading to a baccalaureate degree.

Differentiation of knowledge and skills of graduates from two-year and four-year basic radiologic technology programs has not been established nationally by the profession. Until this situation is resolved, the relationship between two and four-year radiologic technology programs remains unclear as does the objective of advanced education for the graduate of the two-year curriculum. Opportunities available for advanced education leading to preparation for teaching and management functions for graduates of programs in two-year academic institutions *should* but generally do not provide for additional preparation in the professional and clinical areas. Patterns are still evolving for career advancement in higher education for radiologic technologists.

TRANSFER OF CREDIT

Community College Programs

Graduates of the two-year academic community college program who have received an associate degree and who possess certification by the American Registry of Radiologic Technologists should expect to transfer the following credit to a senior institution which offers advanced educational opportunities for radiologic technologists:

1. *General Education*

   A minimum of 18 semester hours of general education credit in the areas listed below should transfer for credit to a four-year college or university.

   a. English Composition ..... 9 q.h.
   The student completing college transfer level English in a community college should be able to transfer one year of the English requirement to the baccalaureate degree.

   b. Biological and Physical Sciences ..... 12 q.h.
   Courses in biological and physical sciences should be transferable to the baccalaureate degree.

   c. Social Sciences ..... 10 q.h.
   Social sciences courses in psychology and sociology should be transferable to the baccalaureate degree.

   d. Humanities ..... 5 q.h.
   Humanities courses should be transferable to the baccalaureate degree.

e. Additional Requirements
Additional courses in general education may be required in the above areas to satisfy transfer institutional degree requirements.

2. *Radiologic Technology Professional Courses*

A minimum of 30 semester hours for didactic and clinical professional studies should be transferable to a four-year curriculum for advanced study in radiologic technology for any student holding an associate degree from an accredited program in radiologic technology and possessing professional certification by the American Registry of Radiologic Technologists.

Hospital-Based Certificate Programs

Graduates of hospital-based certificate programs accredited by the American Medical Association's Council on Medical Education and who are certified by the American Registry of Radiologic Technologists should, upon admission to an appropriate two-year or senior institution, be granted optimum credit for previous experience in the hospital-based program applicable towards an associate or baccalaureate degree. Because of variation in such programs, the amount of credit granted should be determined on an individual basis by utilization of an appropriate method of validation such as review of course content, demonstration of clinical skills, and CLEP and institutional examinations.

Advanced Placement for Certified Radiologic Technologists

Properly certified radiologic technologists who are graduates of either academic or hospital-based accredited programs who have acquired professional knowledge and expertise beyond basic knowledge and skills should have opportunity to acquire advanced standing in a radiologic technology program offered by a senior college or university by demonstration of clinical skills and CLEP and institutional examinations.

Recommendations

1. Further study is necessary to clarify the differences and relationships between community college and senior college and university basic and advanced professional curricula in radiologic technology.
2. Because advanced educational opportunity at the senior institution for radiologic technologists is in developmental stages, close liaison should be established between faculties in the community college and senior institutions in order to avoid problems in credit transfer that have been experienced by other allied health programs.
3. Equivalency and proficiency examinations and other means of validating professional education and experience in radiologic technology should be established for radiologic technologists.
4. In order to facilitate transfer of credit from community colleges to senior colleges and universities, faculty at the community college level should advise students of general education transfer courses and provide didactic and clinical experiences of sufficient caliber to prepare the student for advanced study in senior college curricula for radiologic technologists.

Course Work in Senior Institutions

General College

Additional courses are generally required at the lower and upper division in the following areas by the transfer institution:

1. English, Speech	10 q.h.
2. Mathematics	6 q.h.
3. Biology	8 q.h.
4. Chemistry	3 q.h.
5. Physics	8 q.h.
6. Social Sciences	6 q.h.
7. Physical Education	2 q.h.
	45 q.h.
Advanced Professional	30 q.h.

Advanced professional courses in radiologic and related sciences and professional courses in education and administration will be selected according to the student's career preference.

1. *Radiologic Science/Education Option*

Students pursuing teaching careers should select 20 semester hours from the following recommended courses:

Education

Psychological Foundations of Education	3 s.h.
Educational Measurement and Evaluation	3 s.h.
Psychology of Adult Learning	3 s.h.
Audiovisual Instruction: Techniques and Materials	3 s.h.

Radiology

Organization and Administration of Educational Program in Rad. Tech.	2 s.h.
Instructional Practices (Practice Teaching)	3 s.h.
Electives in Radiologic Sciences	3-6 s.h.*

*dependent on individual needs

2. *Radiologic Science/Management Option*

Students with special interest in management and supervision in future professional practice should select 20 semester hours from the following courses:

Business Administration

Basic Accounting Principles	3 s.h.
Production Management	3 s.h.
Organization Behavior	3 s.h.
Personnel Problems	3 s.h.
Social Psychology of Organization	3 s.h.

Radiology

Seminar in Radiology Administration	2 s.h.
Organization and Management of a Departmental Service (Interdisciplinary)	3 s.h.
Electives in Radiologic Sciences	3-6 s.h.

[2] / *RESPIRATORY THERAPY*

STATUS OF RESPIRATORY THERAPY

Respiratory* Therapy as an Allied Health Profession encompasses a multiplicity of identifiable levels based on academic achievement and/or proven proficiency. These levels include therapist, technician, assistant and student, each having sub-levels with specific requirements, as identified below. Anticipated dates finalizing nationally accepted credentials are also provided.

Therapists

1. Respiratory Therapist: one who is a graduate of a respiratory program approved by the AMA to prepare candidates for the examinations given by the American Registry of Inhalation Therapists, Inc., ARIT, now ARRT. The minimal admission requirement currently established by the ARRT is an associate degree from an AMA approved, or provisionally approved, school of respiratory therapy.
2. Registered Respiratory Therapist: one who has been registered by the ARRT (formerly ARIT).

Technicians

1. Respiratory Therapy Technician:
   a. Effective until December 31, 1974: one who is a graduate of a respiratory therapy program designed to prepare candidates for certification by the Technician Certification Board of the American Association for Respiratory Therapy (AART), or one who has received on-the-job training in Respiratory Therapy.
   b. Effective January 1, 1975: one who is a graduate of a respiratory therapy program designed to prepare candidates for certification by the Technician Certification Board of the AART.
2. Certified Respiratory Therapy Technician: one who has been so certified by the Technician Certification Board of the AART.

Assistants

Respiratory Therapy Assistant: one who has received on-the-job training in respiratory therapy—to become effective January 1, 1975.

Students

1. Respiratory Therapy Student: one who is enrolled in a program (primarily college based) which follows the essentials of a respiratory therapy program established by the AMA.
2. Respiratory Therapy Student-Trainee: one who is employed by a hospital in the respiratory therapy service while engaged in a technical program (primarily hospital based) which follows the essentials of a respiratory therapy program established by the AMA.

Prior to 1970, the only credentialing body for the profession was the ARRT which examined only therapist level candidates. In 1970, the Technician Certification Board (TCB) of the AART, was developed for the purpose of examining a second level—the Respiratory Therapy Technician. Admission requirements for both examinations have been elevated in accordance with the advancement of the profession. For example, the admission requirements for the therapist level examinations have advanced from on-the-job training to a minimal academic requirement of an associate degree. Similarly, the admission requirement for the technician level examination originally was on-the-job training which, as of January 1, 1974, will change to require all candidates to be graduates of AMA-approved, or provisionally approved, respiratory therapy technician program.

Thus far, this data has related to the current status of the Respiratory Therapy profession. Prior to 1975, modifications of the current system are expected. By way of explanation, the AART recently completed phase one of a contract awarded by the Bureau of Health Manpower Education, National Institutes of Health, which delineated the roles and functions of respiratory therapy personnel. The delineation identified the skills and knowledge of two testable levels within the profession. Now underway is the second phase of the delineation which involves the development of proficiency examinations for the two levels (identified as entry levels II and III). It would appear that these levels parallel what is now known as Certified Respiratory Technicians (level II) and Registered Respiratory Therapists (level III). Also, it would appear that the proficiency examinations are being developed to recognize competence of those who have not received formal education in respiratory therapy. The actual requirements for entry at either of these levels should be announced prior to 1975. If proven valid, the proficiency examinations may be adopted by the profes-

*Throughout this statement, "Respiratory" and "Inhalation" shall be considered synonyms because all organizations involved in this profession have not undergone name change.

sion as a credentialing mechanism. Further, the Technician Certification Board of the AART and the American Registry of Inhalation Therapists, Inc. are actively negotiating to determine whether the ARRT can assume full responsibility for credentialing technicians, as well as therapists, by January 1, 1975.

In summary, the transitional period of progressing academic requirements for the respiratory therapy profession would appear to be stabilizing. The following developments have occurred or are anticipated during the year 1974:

1. The establishment of a single, nationally accepted credentialing body by the consolidation of the TCB of the AART and the ARIT. On June 9, 1974 the American Registry for Inhalation Therapy (ARIT) and the Technician Certification Board (TCB) merged to form a new National Board of Respiratory Therapy (NBRT). Included with the change in name of the credentialing body is also a change in the designation of registered therapists. Registered therapists are now no longer ARIT but ARRT, American Registered Respiratory Therapists.

   The new NBRT has already moved to ease its entry requirement for registry for applicants who are already certified technicians. A certified technician is now eligible to take the written registry exam if he completes the application and submits it by October 1, is over 18 years of age and is of good moral character, has three years of experience in respiratory therapy under medical direction after certification and has accumulated 62 college credits from a fully accredited college or university which must include the basic science requirements of schools of respiratory therapy.
2. The creation of professionally developed proficiency examinations for two levels of respiratory therapy personnel.
3. The recognition of clinical experience and academic equivalency necessary for entry into the profession through proficiency examinations.

TRANSFER OF CREDIT

General guidelines recommended for articulation between two-year and four-year institutions of higher education are a result of extensive evaluation of existing two-year respiratory therapy curricula in the state of North Carolina. Because there are no four-year programs available in North Carolina at this time for the advancement of respiratory therapists, a typical four-year health science curriculum is utilized as a model for articulation with respiratory therapy programs based in two-year institutions of higher education. The relationship between typical two and four-year programs in respiratory science is shown below.

Respiratory Therapy Program	Credit Hours Required in a Typical Baccalaureate Program	Credit Hours Recommended for Transfer from a Two Year to a Four Year Curriculum
I. Humanities English Literature	10-15 s.h.	3-4 s.h.
II. Mathematics	5 s.h.	3-4 s.h.
III. Natural Sciences Physics Zoology Anatomy and Physiology Chemistry	15-20 s.h.	15-20 s.h.
IV. Social Science Psychology History	10-15 s.h.	2-3 s.h
V. Electives	5-10 s.h.	6 or more s.h.
VI. Major Field Courses*	70-75 s.h.	30 s.h.
	115-140 s.h.	59-69 s.h.

*Major course of study at the baccalaureate level will include an emphasis in business administration, education, respiratory therapy, or related sciences.

APPENDIX B

PROFESSIONAL DESIGNATIONS

FOR

SELECTED ALLIED HEALTH DISCIPLINES

PROFESSIONAL DESIGNATIONS

Dental Auxiliaries

CDA	Certified Dental Assistant
CDT	Certified Dental Technician
RDH	Licensed Dental Hygienist

Dietetics

DT	Dietetic Technician
DA	Dietetic Assistant
RD	Registered Dietitian
ADA	American Dietetic Association
NCDA	North Carolina Dietetic Association

Medical Laboratory Specialists

AMT	American Medical Technologists
MT(R)	Medical Technologist registered by AMT
MLT(R)	Medical Laboratory Technician registered by AMT
CT(R)	Certified Technician registered by AMT
CLA(ASCP)	Certified Laboratory Assistant registered by the American Society of Clinical Pathologists
CLA(ASCP)	Medical Laboratory Technician registered by the American Society of Clinical Pathologists
MT(ASCP)	Medical Technologist registered by the American Society of Clinical Pathologists

Medical Record Administration

RRA	Registered Record Administrator
ART	Accredited Record Technician
AMRA	American Medical Record Association
RRL	Registered Record Librarian

Physical Therapy

PT	Physical Therapist
RPT	Registered Physical Therapist
LPT	Licensed Physical Therapist
PTA	Physical Therapy Assistant
R or LPTA	Registered or Licensed Physical Therapy Assistant
APTA	American Physical Therapy Association
NCPTA	North Carolina Physical Therapy Association

Radiologic Technology

RT	Radiologic Technologist
RT(ARRT)	Radiologic Technologist Registered by the American Registry of Radiologic Technologists

Respiratory Therapy

ARRT	American Registry of Inhalation
AART	American Association for Respiratory Therapy
TCB	Technician Certification Board of the AART

APPENDIX C

STUDY COMMITTEES FOR THE PROJECT

STUDY COMMITTEES—1972-73

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